THE CHEMIST AND DRUGGIST

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PEACE.

The intelligence brought by the City of Washington, on Wednesday last, has put an end to the gloomy apprehensions of a war with America, which weighed so heavily upon us, and which had begun to affect, more or less, every branch of trade. The Federal Government acknowledges the justice of England's demand, and, by the unconditional surrender of the four prisoners, averts a calamity which no friend of progress could contemplate without dread. By this wise and proper act, the honour of England is vindicated, and her flag may once again be regarded as the sign of a safe asylum, even though it fly from the mast-head of an unarmed vessel. In announcing the welcome news, our daily press has commented on this act of rendition in terms most flattering to the Federal Government, and frankly admits that it is an act of unparalleled political courage as well as one of justice. "We have henceforward," writes a contemporary, "no quarrel with the Americans; we stand once more aloof from the unhappy war which desolates their country, glad to be spared the pain of drawing the sword of England on an enemy already engaged in a struggle for existence. If it is well for her that she did not tempt us to the exercise of our power, it is not the less grateful to us. We accept her hand ten times more willingly than we should have taken up her glove, though that, indeed, would not have daunted us." Even the *Times*, which is evidently somewhat annoyed at the peaceful termination of the Trent affair, is bound to acknowledge that, the quarrel being over, we are now rather better friends than we were before it commenced.

As a trade organ we have nothing to do with the political aspect of a war with America; but, without trespassing on the ground occupied by other journals, we may wander a little way from our special province to consider what would be the effects of such a war on the general trade of this country. Those who have attentively observed the indications of our national barometer, the Consolidated Fund, since the 27th of November last, must know that the mere possibility of such a war weighed down credit, and, as a natural consequence, caused a corresponding depression in trade. Had the City of Washington brought a refusal to give up the four Southerners, instead of a friendly message, Consols must have declined to a very low price, and all commercial interests would now be suffering from the depressing influence of a state of war. A war between the two great sections of the Anglo-Saxon race would soon be found to be a very different thing from a war between the armies of England and Russia, carried on in a remote corner of the world, and it would be long before we should recover from its effects. The greater the injuries we might inflict on our Transatlantic brethren, the greater would be our own loss, for the interests of the two empires are closely connected. Even now our manufacturers and traders are suffering from a war confined to the American people, and it would be absurd to suppose that the participation of England in this war would give them relief, even though certain ports now under blockade should be thrown open. Our commerce would gain nothing if British merchantmen, in exchange for the power of entering certain ports, had to accept the dangers of an ocean infested with privateers.

The outrage on the Trent, which led us to contemplate the possibility of a war, has been so fully described in the columns of our contemporaries, that we need not give the particulars here. The first news of the hostile act committed by Captain Wilkes, and now repudiated by his Government, arrived in London on the 27th of November, and, as soon as it became known, Consols declined from $92\frac{5}{8}$ to $91\frac{3}{8}$. The exportation of saltpetre, large purchases of which had just been made for the American Government, was prohibited by Royal proclamation issued on the same day. On the 2nd of December a demand for the surrender of Mason and Slidell, and their secretaries, was despatched by Cunard steamer, and on the 30th we received intelligence of the intense excitement at New York, when it was first known there that such a demand had been made. It was felt here that this excitement boded no good, and our fears occasioned the sudden fall of Consols to $90\frac{3}{4}$. This great depression in the value of the funds was, however, only temporary. A total rise of $1\frac{1}{4}$ per cent. took place in consequence of the news brought by the City of Washington, and at the present time Consols are rather more than a half per cent. above the point at which they stood before they were affected by the first news of the Trent affair, and about 3 per cent. above the war price to which they were at one time unreasonably forced. These details, though dry enough in themselves, may help us to understand the different stages of the late quarrel between England and America, and also to form some idea of the magnitude of the evil which might have resulted from that quarrel.

The trade and profession which we represent would, of course, suffer from a war with America, though only indirectly, and in a comparatively small degree. Putting aside, however, all considerations of pecuniary loss, there are still many reasons why pharmacists should be particularly grateful to the Federal Government for having dared to act justly. In America, pharmacy is making great progress, being fostered by several admirable colleges, and advanced by the labours of many first-rate men of science. From America we are continually receiving new and elegant preparations, which are far superior in every respect to those of our Pharmacopœia, which they are intended to supersede. The fine researches of the American pharmacists are noticed in most English scientific journals; and in our own pages numerous essays of great interest and importance, derived from American sources, have from time to time appeared. For the sake of pharmacy, therefore, we have reason to be thankful that a war, which would have prevented the interchange of knowledge between the two countries, has been averted. If the expected war had really come upon us, we do not think any English pharmacist could have persuaded himself to regard men like Procter, Parrish, and Maisch as his enemies.

America sends us the dove, but she still holds the vulture of war to her bosom. The two sections of a once united people are preparing for a great battle, which, whatever its result may be, will only widen the breach between them. "Why not now," asks a contemporary, "before the Potomac is reddened with blood, and industry sinks under heavier burdens—why not now make peace? Is there such scant room between the Atlantic and the Pacific that the States should pawn their future to win a battle-field?" We, ourselves, do not profess to understand the object of the Federal Government in continuing a war which can lead to no good results, and we, therefore, ask, in the words of Shakespeare—

"What rub, or what impediment, there is
Why that the naked, poor, and mangled Peace,
Dear nurse of arts, plenties, and joyful births,
Should not in this best garden of the world
Put up her lovely visage?"

PLUM-PUDDING MADE BY PRESCRIPTION!

THE French are great cooks, as all the world is ready to admit, but they have many things to learn. Their obstinate and inveterate ignorance on the subject of plum-pudding is well known. Their errors on this culinary head have been for years matters of scorn to every well-regulated mind. In civilization, in trial by jury, and many other features of social happiness, it has been affirmed, that the French are two centuries behind us; but with regard to plum-pudding they are at least five centuries in arrears. In the "Omniana," we think it is, Mr. Southey has recorded one of their insane attempts at constructing such a pudding: the monstrous abortion, which on that occasion issued to the light, our readers may imagine; and they will be at no loss to understand that volley of "*Diables*," "*Sacres*," and "*Morbleus*," which it called forth, when we mention that these deluded Frenchmen made cheese the basis of their infernal preparation.

Under these circumstances of national infatuation, it is not easy to overrate the admirable act of an English party, who, in the very City of Paris (the centre of darkness on this interesting subject), and in the very teeth of Frenchmen, did absolutely extort from French hands, a real English plum-pudding. Yes! compelled a French apothecary, unknowing what he did, to produce an excellent plum-pudding; and had the luxury of a hoax into the bargain! The *ruse* was delightful; and though it nearly terminated in bloodshed, yet, doubtless, so superb a story would have been cheaply purchased by one or two lives. Miss Hawkins relates it in her "Biographical Sketches," published in 1823, and we give it in her own words:

"Dr. Schomberg, of Reading, in the early part of his life, spent a Christmas at Paris with some English friends. They were desirous to celebrate the season in the manner of their own country, by having, as one dish at their table, an English plum-pudding; but no cook was found equal to the task of compounding it. A clergyman of the party had, indeed, an old receipt-book; but this did not sufficiently explain the process. Dr. Schomberg, however, supplied all that was wanting, by throwing the recipe into the form of a prescription, and sending it to an apothecary to be made up. To prevent all possibility of error, he directed that it should be boiled in a cloth, and sent in the same cloth to be applied at an hour specified. At this hour it arrived, borne by the apothecary's assistant, and preceded by the apothecary himself, dressed, according to the professional formality of the time, with a sword. Seeing, when he entered the apartment, instead of signs of sickness, a table well-filled and surrounded by many faces, he perceived that he was made a party in a joke that turned on himself, and indignantly laid his hand upon his sword. An invitation, however, to taste his own cookery appeased him, and all was well."

This story (suitable to the season) we may pronounce altogether unique: for as, on the one hand, the art was divine, by which the benefits of medical punctuality and accuracy were pressed into the service of a Christmas dinner; so, on the other hand, it is strictly and satirically probable, when told of a French apothecary: for who but a Frenchman, whose Pharmacopœia still teems with the monstrous compounds of our ancestors, could have believed that such a preparation was seriously designed for a cataplasm?

NEW REMEDIES.—That a small proportion of the plants known to botanists have been as yet studied for their remedial properties must be obvious to every one; and when we consider the energy and value of many of those found in our Materia Medica, we must acknowledge that there is *primâ facie* evidence that nature may yet yield us remedies which will greatly extend therapeutics. But to derive any new powers from this source we must, to a certain extent, reverse our past policy. We must rather encourage credulity than indulge in scepticism; at least we ought to receive the testimony of observers in past times as the starting point for our new and more carefully made experiments; and we may with confidence anticipate that nature is not exhausted by our most copious lists of Materia Medica.—*Lancet*.

THE NATURAL ORDERS OF PLANTS.

COMPOSITÆ, ASTERACEÆ, OR SYNANTHERÆ—THE COMPOSITE ORDER.

SUB-ORDER TUBULIFLORÆ.

PRINCIPAL PLANTS AND USES.

Cynareæ, or Cynarocephalæ.

Aucklandia.—The root of the species *Costus,* a native of Cashmere, is stated by Falconer to be the Costus of the Ancients. In the North-Western parts of India, it is commonly known under the name of Orris Root. The roots have a strong, aromatic, pungent odour, are regarded as aphrodisiac, and are burnt in the temples as incense. It is said to be chiefly employed in Cashmere to protect bales of shawls from the attacks of moths.

Calendula.—The flowers of the species *Officinalis,* or Pot Marigold, are used for the purpose of adulterating Saffron; the mode of detecting this fraud will be found in an article on "Crocus Sativus," in our Botanical Calendar for October.* They were formerly considered to be aperient and sudorific.

Carduus.—The species *Benedictus,* (Cnicus Benedictus,) or Blessed Thistle, and some others, were formerly employed as tonics and febrifuges, and it is said with great success.

Carlina.—The species *Acaulis,* a meadow plant, having a very short stem, large flowers, and an involucre of long shining rays, is said to have been used in magical incantations. A strong scented, bitter, caustic oil, having drastic qualities, and a resinous matter, are stated to reside in the bark. The root and flower heads of the species *Gummifera,* yield a gum which hardens into tears resembling Mastich. This plant furnishes the ἰξία or ἰξίνη, of the Ancients, which has been employed from time immemorial as an authelmintic. In the fresh state, the root is said to be very noxious to both man and beast, but the fleshy receptacles, when preserved with honey and sugar, are reported to be eaten.

Carthamus.—The dried flowers of the species *Tinctorius,* Safflower, or Bastard Saffron, are used in the preparation of a beautiful pink dye, sold in the shops in saucers, and denominated "Pink Saucers." The florets are also employed in the manufacture of Rouge, and for the purpose of adulterating Saffron; the means of detecting this sophistication will be found in our Botanical Calendar for October, under the head of "Crocus Sativus."† They are also used, in conjunction with mucilage, in the preparation of the article known as Cake Saffron. The fruits (commonly called seeds) are stated to be purgative, and to have been employed in dropsical cases.

By expression they yield a large quantity of oil, which is known in India under the title of Koosum Oil. According to Dr. Sykes, "the fruits of the species *Persicus* also yield a useful oil, edible when fresh; the cake of which is highly nourishing to milch cattle." They are said to be employed whole in times of scarcity, and the leaves are used as greens.‡

Centaurea.—The species *Calcitrapa* is said to have been employed successfully as a febrifuge.

Cynara.—The young succulent receptacles of the species *Scolymus* are used as food under the name of Artichokes. The Arabians regard the root as aperient, call the gum produced by the plant Kumkirzeed, and consider it emetic. The edible cardoons consist of the blanched leafstalks and stems of the species *Cardunculus.* Some of the species are used by dyers.

Lappa.—The roots of the species, *major* and *minor,* Greater and Lesser Burdock, were formerly esteemed aperient, diuretic, sudorific, and tonic, and have been used, in the form of decoction, in rheumatism and diseases of the skin. According to Sir Robert Walpole, "They possess great virtues as a gout medicine;" and others have regarded them as a useful substitute for Sarsaparilla. The fruit, which is slightly acrid and bitter, is said to be diuretic.

Onopordum.—The species *Acanthum* is the Scotch or Cotton Thistle of gardeners.

Serratula.—The species *Tinctoria* is said to yield a yellow or green dye.

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* Vol. I. p. 338.

† Ibid.

‡ Vol. I. p. 216.

SUB-ORDER LABIATIFLORÆ.

General Properties.—No officinal plants, and but few of any general importance, are furnished by this sub-order. Some few are reputed to possess aromatic, mucilaginous, and tonic properties.

PRINCIPAL PLANTS AND USES.

Anandria.—The leaves of the species *Discoides* are mucilaginous and bitter, and are said to be employed in China as a remedy in dyspnœa.

Moscharia.—The species *Pinnatifida* smells of musk.

Printzia.—The leaves of the species *Aromatica*, are stated to be used at the Cape of Good Hope as a substitute for tea.

Trixis.—The species *Braziliensis* is said to be taken in the form of decoction as a remedy for excessive menstruation.

SUB-ORDER LIGULIFLORÆ.

Chicoraceæ.

General Properties.—The chief characteristic is the presence of a milky, bitter, astringent, or narcotic juice, which commonly possesses alterative, diuretic, aperient, or narcotic properties. The roots of some are esculent, and others, by cultivation with diminished light, become edible as salads.

PRINCIPAL PLANTS AND USES.

Chicorium.—The species *Intybus*, Wild Succory or Chicory, a plant indigenous to this and other countries, is largely cultivated for the sake of its roots; these are torrefied, ground, and used for mixing with Coffee, or as a substitute for it. In the opinion of some, its admixture with Coffee is considered to improve its flavour, but its effects are injurious to the constitution of others. In the fresh state, the roots have been employed medicinally, and have a close resemblance in their action to those of the Dandelion; a blue dye may be prepared from the leaves. The leaves of the species *Endivia*, the Garden Succory, or Endive, when bleached, are used as a salad.

Chondrilla.—A gum resembling Lactucarium is obtained at Lemnos from the species *Juncea*, and termed Κόλλα.

Helminthia.—The leaves of the species *Echioides* are stated to be boiled and pickled in Greece.

Lactuca.—Articles on the species *Sativa*, and *Virosa*, will be found in our Botanical Calendar for June.* Other species are said to possess similar properties. According to Aubergier, "the best Lactucarium is obtained from the species *Altissima*."

Mulgedium.—The species *Floridanum* is called "Gall of the Earth" on account of its bitterness.

Nabalus.—The bitter milky roots of the species *Serpentaria* and *Albus*, two North American plants, are reputed to be remedies for the bite of the rattlesnake.

Scorzonera.—The species *Deliciosa* is cultivated at Palermo, for its roots, which are employed as an esculent. The roots of the species *Glastifolia* resemble those of the species Hispanica in qualities. The roots of the species *Hispanica* are employed as an esculent, and termed Scorzonera. The gummy root of the species *Tuberosa* is said to be eaten by the Calmucks.

Taraxacum.—An article on the species *Officinale* (T. Dens Leonis.) will be found in our Botanical Calendar for September.†

Tragopogon.—The roots of the species *Porrifolius* are eaten under the name of Salsafy. In America it is known as "The Oyster Plant," from the circumstance of its roots, when boiled, being considered to resemble that mollusk in flavour.

Zacynthia.—The root of the species *Verrucosa* is said to be used in the Mediterranean as a phagœdenic.

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* Vol. 1. p. 216. † Vol. I. p. 306.

PHOTOGRAPHIC FORMULÆ.—I.

In our last volume we gave an extensive alphabetical list of the various chemicals used in photography; in the present, we intend laying before our readers a few of the best-known formulæ, all of which may be relied on as well tested and correct. We commence with the most important, those employed in the Collodion process.

THE NEGATIVE COLLODION PROCESS.

The method of making collodion for this and the following processes has already been described:*

The Nitrate of Silver Bath.

Nitrate of silver	30 grains.
Distilled water	1 ounce.

Dissolve and saturate with iodide of silver by dropping in a solution of iodide of potassium, until the precipitate formed is no longer redissolved. The strength of the solution of iodide of potassium is immaterial—five grains to one ounce of distilled water is a convenient proportion. The bath is saturated with iodide of silver, that it may not dissolve that which is formed in the sensitised film. Filter and test for free nitric acid with a piece of litmus paper. If the paper is reddened in less than three or four minutes, nitric acid is present, and must be neutralised by dropping into the liquid a few drops of solution of carbonate of soda, 10 grains to the ounce, until a distinct cloud appears. Filter and add to every 4 ounces 1 drop of glacial acetic acid, and 1 drachm of alcohol. Nitrate of silver baths occasionally become too acid or too alkaline. The former of these defects lessens the exposure, and gives a picture deficient in half-tones and softness. Too great alkalinity, or indeed alkalinity at all, gives a foggy, indistinct image. To work properly, a bath should be just on the acid side of neutrality. To remedy alkalinity, acetic acid must be added, drop by drop, until a piece of litmus paper turns red in four or five minutes. If, on the other hand, the bath is too acid, the addition of carbonate of soda, and afterwards acetic acid, as detailed above, is the remedy. If a bath will not work after such an application, it may be looked on as spoiled by the accidental contamination of sulphur or organic matter. A gas jet not properly turned off, a leaky gaspipe, a smoky chimney, or a coke fire, is quite sufficient to spoil a bath beyond hope of remedy. After long use, baths become so saturated with ether and organic matter, that the resulting negative is covered with streaks and spots. Such a bath should be put away in a bottle for three or four weeks, when, if a cure has not been effected, it should be treated as waste.

Developing Solutions.

No. 1. For Fine Cool Weather.

Pyrogallic acid	4 grains.
Glacial acetic acid	1 drachm.
Water	4 ounces.
Alcohol	1 drachm.

No. 2. For Hot Weather.

Pyrogallic acid	4 grains.
Citric acid	2 grains.
Alcohol	1 drachm.
Water	4 ounces.

No. 3. For Cold Weather.

Protosulphate of iron	1 drachm.
Glacial acetic acid	2 drachms.
Water	4 ounces.
Alcohol	1 drachm.

Distilled water should always be used.

The formula No. 1 may be used nearly the whole of the year; No. 2 when the thermometer rises above 80°; and No. 3 when it sinks below 40°.

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* Vol. II. p. 201.

If the image given by No. 2 is too long in appearing, increase the pyrogallic acid, and diminish the citric acid.

If the image given by No. 3 is not sufficiently intense, add six grains of acetate of soda to the ounce.

These solutions will keep good for a week or more. Citric acid being a very powerful acid, great care must be taken not to exceed the quantity given in the formulæ.

The picture is fixed by pouring over it

Hyposulphate of soda	1 ounce.
Common water	2 ounces.

Dissolve and filter.

In using this, great care must be taken not to let it reach the bath or plates, a mere finger mark on a plate being sufficient to spoil a bath. For this reason many prefer

Cyanide of potassium	5 to 10 grains.
Common water	1 ounce.

Dissolve and filter.

Its defects are the poisonous fumes it is apt to give off, and the liability to destroy the fine half-tones of the picture if kept on too long. With proper ventilation, patience, and dilution, neither of these accidents need occur. It is difficult to give the proper strength, as different samples of cyanide contain different quantities of carbonate of potash. The film should be cleared in not less than two minutes.

THE POSITIVE COLLODION PROCESS.

For positives, positive collodion should be used. Many operators use negative collodion indiscriminately for positives and negatives, but such a proceeding is not recommended. The nitrate bath is prepared in the same way as for negatives, but substituting nitric acid for acetic, and in the proportion of 1 drop to 5 ounces of bath. If the shadows of the picture appear at all fogged, more nitric acid must be added, drop by drop, until the picture appears clear and round. Mr. Sutton recommends 40 grains of nitrate of silver to 1 ounce of water and 1 minim of nitric acid.

Developing Solutions.

No. 1. Protonitrate of Iron.

A very excellent developer, giving intense white pictures as described under the above head in our list of photographic chemicals.*

No. 2.—	Protosulphate of iron	1 drachm.
	Glacial acetic acid	2 drachms.
	Distilled water	4 ounces.
	Alcohol	½ drachm.

If the image appears at all yellow or brown, add nitrate of potash in the proportion of 1 grain to 2 of protosulphate of iron. One drop of nitric acid to 4 ounces of developer has a similar effect. Hyposulphate of soda should not be used for fixing, as it is liable to turn the image yellow.

The following is recommended by Mr. Hardwich:

Nitrate of silver	1 grain.
Cyanide of potassium	10 grains.
Common water	1 ounce.

The nitrate of silver is added to prevent the too great solvent power of the cyanide of potassium from causing the half-tones of the picture to disappear.

A re-developing solution for positives is sold under the fanciful name of "Alabastrie Developer," the composition of which is a trade secret. From an analysis made by the writer it appears to consist of chloride of mercury and protosulphate of iron dissolved in water, to which is added a proportion of alcohol. The results obtained by its use are very fine. There is a purity of color about the lights of the picture that is very artistic. The picture is developed in the usual way, and after being well washed, the alabastrie solution is poured on and allowed to remain until the color of the image is changed to a brilliant white; it is then washed off, and the picture is varnished in the ordinary way. It is said that alabastrie photographs are apt to become discoloured after a time from absorption of sulphur from the air; but if they are properly varnished and enclosed in an air-tight case, there is no reason why this should occur.

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* Vol. II. p. 295.

It often happens that after a negative is finished and dried it appears to have insufficient intensity. A variety of solutions have been devised for the purpose of remedying this defect :—

Sol. A.—	Iodine	6 grains.
	Iodide of potassium	12 grains.
	Water	6 ounces.
Sol. B.—	Sulphide of potassium	10 grains.
	Water	1 ounce.

Having well washed the picture in order to moisten it, pour solution A off and on until the image becomes yellow from the formation of iodide of silver; wash well, and apply solution B until the image has changed to reddish brown. Dry and varnish. This process is very serviceable in copying old engravings and pictures. Re-developing solutions for turning positives into negatives are continually being advertised by anonymous operators. They are generally modifications of the above, and are useless for the purpose named.

A positive is simply an under-exposed negative, developed with iron, and all the intensifying in the world will not supply the place of adequate exposure. Many country operators are gulled by these advertisements, which offer formulæ for taking negatives in half the usual time. The man who could discover any process by which the sensitiveness of the collodion film could be doubled, would soon make his fortune, and find it unnecessary to advertise his secret for a dozen postage stamps. After the picture is washed and dried it is varnished, and, in the case of positives, backed up either with black varnish or black velvet. The writer prefers black velvet, as it is not likely to alter the tone of the image. Many operators turn the wrong, *i. e.* the collodion, side of the picture outwards, but this should never be done, as such a picture cannot be a likeness from the sides being reversed. With proper colourless glass, and chemicals in good order, the appearance of the image is as good from one side as from the other. Positives often appear spoiled from the film of black varnish having cracked in all directions. By soaking carefully in benzole, the old varnish may be removed and new substituted. If done carefully no fear need be entertained of hurting the collodion film, as it is not dissolved by benzole.

SCIENTIFIC INTELLIGENCE.

CHEMISTRY.

Arsenic as an Impurity of Metallic Zinc.—Two American chemists, Eliot and Storer, have been recently engaged in investigating the impurities of commercial zinc, and have arrived at conclusions which are of the highest importance in medical jurisprudence. The general opinion, that arsenic is a very common impurity of commercial zinc, may be traced back to the confident assertion of Proust, near the beginning of this century. It is quite clear, however, that Proust, and probably many other chemists following him, were led into error by the close resemblance of the sulphide of arsenic to the sulphide of cadmium, which last metal, not recognised till 1817, has since been shown to be a very common admixture in the zinc of commerce. The invention of Marsh's apparatus, in 1835, gave to chemistry a test for arsenic of most wonderful delicacy; and Marsh himself, in his original memoir describing the application of the test, remarks, that the only ambiguity that can possibly arise in the mode of operating with his apparatus, arises from the circumstance, that some samples of the zinc of commerce themselves contain arsenic. But Marsh, while warning operators against the possible impurity of the zinc, says not a word about the presence of arsenic in the acids employed; and many observers since Marsh have been more ready to attribute the infinitesimal quantities of the poisonous metal, which his process has enabled them to detect, to the zinc than to the acids. Schauefel has actually attempted to determine quantitatively the per-centage of arsenic in French, Silesian, and Vieille Montagne zincs, and his results have been quoted in many recent works on Toxicology. Eliot and Storer, after a long course of very careful experiments, have arrived at the following conclusions:—first, that much of the zinc of commerce is free from arsenic, or at least contains no arsenic that can be detected by the most delicate tests known for that metal; secondly, that the sulphuric and hydrochloric acids found in commerce do very often contain arsenic, and are always so liable to contain it as to be utterly unfit for use in Marsh's process, without special purification for that purpose. The apparatus used throughout the investigation was Otto's modification of that of Marsh, and which, by a series of special experiments, was found to be sufficiently delicate to detect a quantity of arsenic less than one ten-millionth of the weight of the zinc used, or the amount of fluid in the flask. In experimenting with Silesian and Vieille Montagne zincs, when commercial acids were employed, arsenic was invariably deposited in the reduction tube. The deposits were often too thin and slight to be positively identified as arsenic; but they could not be distinguished from minute deposits of that metal, and any one of them would have been perfectly fatal in a medico-legal investigation. Not convinced that the zincs were the source of the arsenic, the acute chemists tested 200 grammes of Vieille Montagne zinc, with an acid, in which the presence of arsenic could not possibly be suspected. After passing, during more than hour, a continuous, gentle stream of the disengaged gas through the reduction tube, a portion of which was maintained at a bright red heat, they found that there was absolutely no deposit whatever in the cool and narrow part of the tube. With the same acid and apparatus, 200 grammes of Pennsylvanian zinc were tested in precisely the same manner, and again no deposit appeared. Many fragments of these two specimens of spelter were examined at different times with the pure acid, and in each experiment the same conclusion was arrived at. It cannot, therefore, be doubted, that these spelters were free from arsenic. On repeating the experiment with the same quantity of Silesian zinc, a faint but perceptible mirror of arsenic was gradually formed. Four specimens of English zinc, and one sample from New Jersey, were then successively experimented upon, and each gave a very perceptible mirror. The zinc of Rousseau Frères, on being submitted to the same test, yielded a brown deposit hardly to be called a mirror. The sulphuric and hydrochloric acids, which gave distinct deposits of arsenic, were of American manufacture, one sample having been sold as "chemically pure." As only a few samples were examined, the experimentalists do not pretend to have established the affirmative proposition, that there is always arsenic in these acids. The impurity of the acids was only an incidental difficulty in the research, which related to zinc; and Eliot and Storer deserve the thanks of every chemist and pharmacist who has to do with poisoning cases, for having wandered away from their main subject in order to give the world some trustworthy information upon this secondary but very important point.

Zinc and Sulphuric Acid for Marsh's Test.—In the memoir from which we have gathered the above particulars,* the authors refer to the difficulty of obtaining a pure zinc by reducing it from the oxide on a small scale, and declare that nothing but the direst necessity could induce them to again attempt the operation, although it has been recommended by many high authorities. They admit, nevertheless, that it is by no means difficult to prepare a pure oxide of zinc, and think that manufacturers working on a larger scale than it is practicable for a chemist to do, might undoubtedly prepare from this oxide, at moderate cost, a really pure zinc. There are some processes of chemical analysis in which the contamination of zinc with metallic lead is a matter of importance, because it affects the accuracy of the results; but in these cases, the difficulty can generally be avoided by discarding zinc altogether, and resorting to other agents for the analysis. But in order to use Marsh's process for the detection of arsenic, there is no escape from the necessity of having pure zinc, and it has been clearly shown that re-distillation will not disembarrass the commercial metal of its arsenic. At present the zinc labelled "pure" by those who sell chemicals is not to be relied upon, and the chemist must therefore test samples procured from the metal dealers, until he finds a specimen of pure zinc which is manufactured on a large scale, and is to be obtained in commerce.

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* *American Journal of Science and Arts.*

To obtain sulphuric acid free from every trace of arsenic, Eliot and Storer adopted the following beautiful process. The acid is first boiled with a little flowers of sulphur, as proposed by Barruel, in order to free it from the nitrous fumes which the common sulphuric acid almost always contains; a small quantity of pure hydrochloric acid is then stirred into the cooled acid, which has been carefully decanted from the free sulphur, and the whole again boiled; to the acid, again cooled, a second addition of hydrochloric acid is made, and again the acid is heated till dense white fumes have been escaping for upwards of half-an-hour. During this process, the volatile chloride of arsenic is completely driven off, the second addition being made, as has been recommended by H. Rose, in order to insure this result. Lastly, a portion of chlorine-water is added to the cooled acid, to oxidize any sulphurous acid which may be contained in it, and after a third boiling, the acid, cooled and diluted with three parts water, is ready for use. This method of purifying sulphuric acid is a combination and modification of several well-known processes. Buchner introduced the mode of purifying sulphuric acid by means of hydrochloric acid, and the use of chlorine as above described was recommended by Jaquelain. The whole operation can be performed in a shallow evaporating-dish, and presents no serious difficulties of any kind.

New Formula for a Compound of Ammonia, Mercury, and Nitric Acid.—In the course of an extended examination of the reactions of the ethyl bases, M. Carey Lea, of Philadelphia,* noticed that both ethylamine and diethylamine gave, with acid solution of mercuric nitrate, a white precipitate, which is permanent, although the solution contains a large excess of acid. This compound he regarded as analogous to that formed by ammonia under similar circumstances, and did not think it worthy of a special examination. With respect to the constitution of the ammonia compound, this industrious chemist makes the following remarks:

"The formula adopted for this compound by L. Gmelin, apparently on the authority of Kane, C. G. Mitscherlich, and Pagenstecher, whose analyses are quoted, is

$$Hg\,N\,H_2 + 2\,Hg\,O,\,N\,O_5.$$

This view of the constitution is liable to two objections; first, that it supposes the existence of the bibasic nitrate of mercury in it, which substance is so unstable that it is decomposed by mere contact with cold water; second, that it is unnecessarily complicated. If we assign to the compound the formula

$$\left.\begin{matrix}Hg_3\\H\end{matrix}\right\}N\,O,\,N\,O_5 + 2\,H\,O,$$

differing from the foregoing by one atom of hydrogen, and one atom of oxygen, we greatly simplify our view of its constitution, and refer it to the class of substituted ammonias. Adopting this view, we are able to explain its formation by the action of ammonia on mercuric nitrate, in a very natural equation,

$$3\,(Hg\,O\,N\,O_5) + N\,H_3 = \left.\begin{matrix}Hg_3\\H\end{matrix}\right\}N\,O,\,N\,O_5 + 2\,H\,O + 2\,N\,O_5.$$

(From mercuric nitrate and ammonia we get the new body, water and nitric acid, as products.) Unless ammonia be added in excess the solution always remains acid. Not only is the formula here proposed more in harmony with the views entertained at the present day, which tend, as far as possible, to refer such compounds to the ammonia type, but what is somewhat remarkable, it accords with the analyses of all three of the chemists previously mentioned, much better than the formula hitherto adopted."

Platinum Coating for Porcelain Crucibles.—A German chemist, Elsner, describes a very simple method by which a strong covering of metallic platinum may be given to porcelain vessels. Platinum-black is rubbed up with oil of turpentine, and the mixture is painted over the object to be coated, made red-hot. The vessel when coated is enclosed in an earthen crucible, and heated to a high temperature in a furnace, after which it will be found perfectly covered with a strongly fixed film of metallic platinum. Platinum black was found to be fusible in the strongest heat of the furnace oven in the Royal Porcelain Manufactory at Berlin.†

Semi-Metals.—Professor Jerome Nickles, of Nancy, has communicated to the *American Journal of Science and Arts*, the following interesting observations: "The so-called semi-metals stand between the metals and metalloids, marking the transition between these two classes of elements. They share with the first: 1. The metallic lustre; 2. Conductivity of heat; 3. Conductivity for electricity; 4. Density. With the metalloids they possess the properties: 1. Of being acidifiable; 2. Of forming only feeble salifiable bases; 3. Of combining easily with the metals in the manner of electro-negative bodies; 4. Of occasionally forming gaseous compounds with hydrogen. These characters are not absolute, and under them the semi-metals may vary among themselves as much as they differ from other elements—however, there is one character which enables us to determine nearly where the series of semi-metals begins and ends.

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* *American Journal of Science and Arts.*

† *Chemical News.*

"The idea of *malleability* is the one which attaches itself most forcibly to our notion of a metal. The word 'metal' involuntarily recalls a body, sonorous, heavy, capable of being hammered and drawn into leaves and wire. Viewed from this point we find certain of the metallic elements which possess neither malleability nor ductility, and, strangely enough, these elements are those which we know as *acidifiable metals*. Among them we find *tellurium, tungsten, osmium, arsenic, antimony*, and lastly *bismuth*, which until lately ranked with the metals proper. The establishment of its isomorphism with antimony and arsenic, themselves isomorphous with phosphorus and nitrogen, has, however, indicated the true position of bismuth. In external characters it agrees with the metals, saving in its want of tenacity and brittleness, peculiarities common to all the other elements of a metallic lustre which we call semi-metals. Wanting tenacity, these elements ought consequently to possess little elasticity and sonorousness; but these characters are less obvious, and require special experiments to determine them, while it is easy to recognize the character of brittleness. It is proposed, therefore, to consider as *semi-metals* those metallic elements which are neither ductile nor malleable—in other words, the *brittle metals*."

Reproduction of Crystalline Minerals.—Deville has lately succeeded in preparing a number of crystalline metallic oxides by the action of a current of hydrochloric acid gas upon metallic oxides, heated in a platinum boat contained in a tube of porcelain. The temperature usually employed was that of melting copper. A volatile chloride is at first produced, and this is then decomposed by the vapour of the water formed in the reaction, the temperatures of formation and decomposition being probably different. In this manner, Deville has obtained *stannic acid*, $Sn\,O_2$, in beautiful crystals of the same form as in the native oxide, and *titanic acid* in brilliant crystals of a bluish tint like *anatase*. He has also prepared by the same process *magnetite* in regular octahedra; *magnoferrite* ($Fe^2\,O_3$, $Mg\,O$) in octahedra; *periclase* in colourless or greenish octahedra; *haussmanite* in square octahedra; *protoxide of manganese* in splendid emerald green octahedra or cubo-octahedra; and *specular iron* in beautiful crystals like the Elba ore. In the last case he found it necessary to pass the gas through the apparatus in a slow and regular current, otherwise the sesquioxide of iron became entirely converted into sesquichloride. Deville suggests that gaseous emanations, as, for example, hydrochrolic acid, may play an important part in geological phenomena, and may conduce to the formation of many crystalline minerals.

PHARMACY.

The Resins and Aqueous Extract of Jalap.—In compliance with the expressed wish of Professor Thomas, of the Philadelphia College of Pharmacy, M. J. C. Long has undertaken a series of experiments to determine unequivocally whether the aqueous extract of Jalap deprived of the resins possesses any purgative properties. The conclusions arrived at differ somewhat from the opinions entertained by most writers on Materia Medica, particularly with respect to the action of the soft resin. By a very careful process which is fully detailed in Mr. Long's paper,* the three most important constituents of the powdered jalap, the aqueous extract and the hard and soft resins, were isolated, and each was then therapeutically tested. Numerous experiments were made, which proved conclusively that the gummy or aqueous extract is entirely inert, and further that the activity of jalap a sa purgative is not, as is generally supposed, exclusively due to the hard resin (that which is insoluble in ether), but also to the soft or ethereal resin, which is possessed of purgative properties equally strong, if not stronger.

* *American Journal of Pharmacy*, November, 1861.

Glycerine Ointment and Lotion.—In a report to the Medical Association of Maine, Dr. H. T. Cumming describes a beautiful ointment, which will replace the Ung. aquæ rosæ. It may be prepared by the following formula:—

Almond Oil, expressed	f ℥ij.
Spermaceti	ʒvi.
Glycerine	f ℥iv.
Otto of Roses, Otto of Bergamot, each	Oij.

Melt the spermaceti by the aid of the water-bath, add the almond oil so gradually as not to re-congeal any of the spermaceti; remove from the bath, and stir until the mixture concretes on cooling, when the glycerine is to be added and thoroughly incorporated. The ottos are finally to be incorporated, when the ointment is finished. Another excellent emollient application is described as *glycerine lotion.* It may thus be prepared:—Take of mucilage of quince-seeds, glycerine, each one fluid ounce: mix; orange-flower water, six fluid ounces; make a lotion. The ointment above described has, in the writer's experience, kept perfectly sweet, even under very unfavourable circumstances.

Sodæ Carbonas Siccata.—H. N. Draper* has pointed out the disadvantages of the process given in each of the British Pharmacopœias for the preparation of dried carbonate of soda, which process consists in exposing crystals of the carbonate to the action of heat until the whole of the water is dispelled. The disadvantages of this method are:—1. The carbonate of soda of commerce, which is always used in practice to the exclusion of the pure product of the Pharmacopœias, invariably contains sulphates and chlorides. These are, of course, found also in the dry salt. 2. The hard cake which results from the desiccation of the crystals is extremely difficult to powder, and never makes a really elegant preparation. Both these inconveniences may be remedied by the substitution of bicarbonate of soda for the carbonate. When this salt is heated to redness, it, as is well known, loses one of the two equivalents of carbonic acid, and all the water, a pure mono-carbonate remaining. Bicarbonate of soda of commerce is generally almost pure, and never contains more than slight traces of chlorides and sulphates. When not heated beyond redness, the resulting carbonate instead of being hard, is a loosely cohering perfectly white powder. The slight difference in the cost of the carbonate and bicarbonate is of small moment when compared with the saving of time and trouble, and the superiority of the dried carbonate made from the latter salt.

Honey of Roses.—Mollier, of Paris, describes a method of preparing the honey of roses (mel rosarum), different from that given in any of the Pharmacopœias. He claims for his product greater clearness and astringency, and finer odour and colour than the confection obtained by the old method possesses. He infuses one pound of red rose leaves in four pounds of boiling water, macerates them for twelve hours, then expresses and filters. The residue he again infuses in five pounds of boiling water, and treats the mass as before. He then dissolves six pounds of good honey in the liquor from the second infusion, and boils this down to a thick syrup, carefully removing from time to time the thick scum which forms on the surface. To the boiling syrup he adds, by degrees, the first infusion, removing, as before, the scum; and when the two liquids are thoroughly incorporated he strains the resulting syrup through linen.

PHYSICS.

Production of Vibrations and Sounds by Galvanic Currents. At the last meeting of the Royal Society, held on Thursday, January 9th, a paper was read from Mr. Gore, describing the production of visible vibrations and sounds of varying intensity, by the passage of voltaic currents through a solution of cyanide of mercury and potash in dilute hydrocyanic acid, under which circumstances the mercurial connections, if of the requisite forms, are thrown into visible vibrations of varying rapidity, and emit sounds, the pitch of which varies with the vibrations.

It was found that when a small number of cells of a large size were employed, the vibrations were small and the sounds emitted high; but that when the cells were numerous and small, the vibrations of the mercury were large and the sounds bass. Again, the number and pitch of the vibrations produced by the same current can be varied by transmitting it through a primary or secondary coil of wire. The inference drawn by

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* *Dublin Medical Press.*

Mr. Gore from these extremely interesting and valuable experiments is, that they prove electricity, like heat and light, to consist essentially of vibrations, which, under ordinary circumstances, are so minute as to be unappreciable, but that under certain conditions, as in the experiments that have been alluded to, may be so modified as to become visible. The paper was regarded as a very valuable contribution to science by the Fellows of the Society, although the idea was expressed that further facts would be required before the conclusion arrived at by the author could be regarded as proven.—T.

Effects of Nocturnal Radiation.—It is acknowledged that about the period of sunset, provided the sky be clear, the temperature of the air in contact with the earth's surface is cooler than that of the atmosphere at a certain height above the ground. This fact, which has been established by the observations of several philosophers, is no doubt attributable to the gradual cooling of the earth's surface, arising from the nocturnal radiation of the heat into empty space: which radiation, when the sky is clear, is not compensated by the transmission of caloric from the higher regions of the atmosphere. The cooling of the surface of the earth naturally gives rise to a corresponding diminution of the temperature of the stratum of air in its immediate vicinity; the effect is communicated to the stratum above, though naturally in a less degree, and so on from one stratum to another until a height be obtained, at which the temperature of the atmosphere is found to be equal to that of the stratum of air in contact with the earth. Professor Marcet in October last made a series of observations on the Lake of Geneva to ascertain whether the effects of nocturnal radiation, tending as they do to produce a gradual increase of temperature on ascending above the earth's surface, are entirely dependent on the radiation of the ground, properly so called, or whether they are equally perceptible above a large sheet of water. Now, although we know that water possesses considerable radiating power, we are not authorized to conclude *à priori*, that the nocturnal increase of temperature above the sea or a lake corresponds with that which may be observed above the solid ground, as we have to take into consideration a fact depending on the peculiar constitution of liquids, which must tend to diminish the sensible effects of simple radiation. The particles of liquids, it is well known, are essentially moveable, and subject to a constant change of position when affected by the slightest changes of temperature. The consequence is, that the moment the upper surface of a given extent of water has begun to cool by the effect of nocturnal radiation, it will become denser than the stratum immediately below it, and will, therefore, descend, being replaced by the lighter one; this becoming heavier in its turn, will be replaced by the following, and so on with each stratum in turn. Taking into consideration this constant interchange of position of the different strata, we need not expect to find any appreciable change in the temperature of the surface of the water as the result of nocturnal radiation, and may safely conclude that the gradual increase of temperature above this surface will become, if not entirely imperceptible, at least far less apparent than on land. Marcet's observations* thoroughly corroborate this view. With mercurial thermometers capable of showing a tenth part of a degree (Centigrade) the temperature of the air at three inches, six feet and fifteen feet above the surface of the lake, was examined, the observations being made at the distance of about 600 yards from land during exceptionally fine weather. Comparative observations were made at the same moment on the borders of the lake within a few feet of the water, and in the centre of a large field about 700 yards from the lake. The average results of these observations are given in the following table, the temperature being expressed in centigrade degrees:—

	LAKE.	SHORE.	FIELD.
Surface	12°.	9°.90	6°.98
3 inches	11.65	10.40	8.
6 feet	11.62	10.55	9.10
15 feet	11.80	10.62	9.65

From these observations Marcet draws the following conclusions:—1. The gradual increase of temperature occurring on ascending through the lower strata of the atmosphere, which appears constantly to prevail on land about and after sunset, is not apparent above a large surface of water. 2. The immediate vicinity of a large sheet of water is sufficient to modify to a considerable extent the effects of the nocturnal radiation of the earth, and thereby materially diminish the increase of temperature observed under ordinary circumstances on ascending above the surface of the ground. 3. A striking difference (amounting to between 2 and 3 centigrade degrees) is constantly observed between the temperature of the atmosphere a few feet above the ground and that of the air at the same height above a large sheet of water.

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* *Philosophical Magazine*, January, 1862.

REVIEWS

The Improved Induction Coil; being a Popular Explanation of the Electrical Principles on which it is constructed. By HENRY M. NOAD, PH. D., F.R.S. London: William Ladd.

We need not inform the readers of this journal, that the little book before us is a well-written, intelligible, and trustworthy treatise, for the name which appears on the title-page will be accepted by them as a sure indication of all the good qualities which are usually found in works executed by first-class scientific men. Dr. Noad has contributed many valuable articles to our journal, and must have won the good opinion of our subscribers by the immense pains which he has taken to smooth away the difficulties of quantitative analysis. We are glad to have an opportunity of noticing a work from the pen of this distinguished chemist and physicist, as we may at the same time publicly express our admiration for his scientific attainments and literary skill. We do not write these words of praise for the glorification of our journal, for we may candidly inform our readers, that it is at present doubtful whether Dr. Noad will contribute anything to the volume which commences with this number. Under the pair of spectacles by which Mr. Harry Rogers has symbolized our critical acumen, we intend always to speak our mind freely, and to praise or condemn any writer, even though he happen to be a known contributor to this journal. We prefer to run the risk of being accused of personal vindictiveness, rather than to help to give currency to a worthless book; and on the other hand we do not care if our praises of a really good book are sometimes ascribed to simple good-nature and personal friendship. By honestly performing the thankless task of examining and reporting on the work of other brains, we shall earn the gratitude of numerous book-buyers, and, as bad books are seldom sent to us, we shall make more friends than enemies.

The work at present under consideration, though professedly only a hand-book for those using the excellent voltaic and magnetic apparatus manufactured and sold by Mr. Ladd, of Beak Street, may be consulted for reliable information on all the general principles of electro-magnetism. In describing these principles Dr. Noad has borrowed much from his own *Manual of Electricity,* a book which is known to every electrician. The sketch given of the history and principles of electro-magnetism is of course brief, but still few important facts are omitted. More than half the book is filled with directions for performing experiments with the beautiful instrument of which we give an illustration. The construction of the ordinary electro-magnetic coil machine is so well understood, that we need not quote Dr. Noad's account of it, but will pass on to his description of the induction coil, which has lately been brought to such perfection. Dr. Noad says:

> "Up to about the year 1842, the only object sought by makers of electro-magnetic machines would seem to have been the production of shocks, and the regulation of their intensity and frequency. It was M. Masson who first directed attention to other statistic phenomena which the instrument was capable of developing; in that year he constructed, in conjunction with M. Breguet, an apparatus with which, though consisting of a single coil only, and that very imperfectly insulated, he was able to obtain sparks in rarefied air of sufficient length to show the unequal heating powers of the two poles of the circuit; to charge a condenser, and to ignite platinum wire. These electricians were therefore the first to show that, by the process of induction, the electricity of the galvanic battery (dynamic) is converted into the electricity of the ordinary electrical machine (static).
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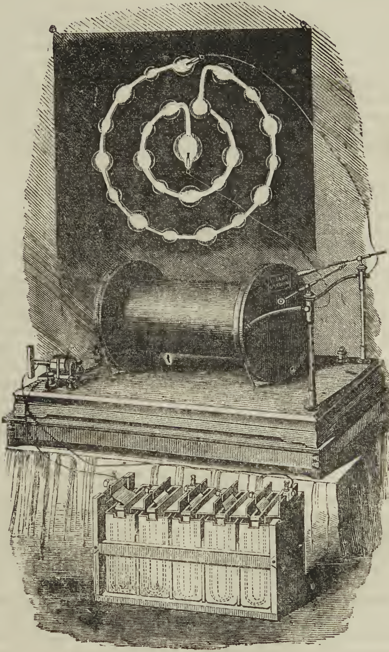
> "In 1851, M. Ruhmkorff, an intelligent and well-known philosophical instrument maker in Paris, directed his particular attention to the more perfect insulation of the wire, which, after covering in the usual way with silk, he surrounded with a coating of gum-lac, and attached the ends to glass rods, rightly concluding that the wooden frame of the instrument, though sufficiently insulating for voltaic, was not so for static electricity. He moreover diminished the diameter of the coil, thereby, with the same quantity of wire, obtaining a greater number of convolutions; and he greatly increased the length of the secondary, extending it in some of his machines to the length of nearly six miles. Lastly, from a conviction that the magnetic current was more effectual in arousing an induced current than the mere coil, that is, that the secondary effects were referrible more to *magneto-* than to *volta-*electric induction, he gave in his coils a great development to the former, by introducing into the axis of the primary a large bundle of iron wires, which he found to acquire a much higher degree of magnetism than an equal weight of iron in the form of an iron bar. To interrupt the inducing current, he employed a simple piece of mechanism known as 'Neef's' hammer, consisting of a small block of iron, which vibrated between the projecting end of the coil of iron wires and a small anvil connected with the primary coil, in such a way, that when the anvil and hammer were in contact, the current was *on,* but the moment they separated it was *off.* It will be unnecessary to

describe minutely this form of contact-breaker, as it has given place to other and far more efficient arrangements. With these improvements Ruhmkorff obtained effects which were at that time surprising; he not only got brilliant sparks between the terminals of the secondary wire, but between the wire itself and a body out of the circuit in communication with the earth; and he obtained a discharge, in a vacuous globe, of great brilliancy, the spark filling the balloon with that magnificent phenomenon, stratified light, about which we shall have more to say presently. These effects were greatly exalted in degree by interposing in the circuit of the primary a simple condenser, as recommended by M. Fizeau; brilliant and crepitating sparks in free air were now obtained three-quarters of an inch long, and the shock was so violent, that it is stated by Du Moncel, that M. Quet, incautiously getting himself into the circuit, was knocked down, and so much injured as to be obliged to keep his bed for some time, nevertheless the battery only consisted of six elements. We are reminded by this story of the account given by Muschenbroek of the effects on himself of his first shock from a Leyden phial, which he declared deprived him of his breath, and made him ill for two days; it is, however, true that great care is necessary in experimenting with the induction coil as at present constructed, as an incautious contact with the secondary wire communicates a most disagreeable shock; though how M. Quet came to be so much affected, unless he wantonly placed himself directly in the circuit, we are at a loss to understand. Various forms are given by M. Ruhmkorff to his coil; the bobbin is sometimes arranged vertically, though generally horizontally, and the ends are backed up and supported by discs of glass or gutta percha, through which the wires of the secondary pass to their insulating pillars. The size of the primary wire is about 0.073 in. in diameter; the secondary wire is the No. 28 of



commerce; and the instrument is furnished with a commutator, for the purpose of reserving at will the direction of the current.

"Shortly after Ruhmkorff's improvements were announced, Mr. Hearder exhibited one of his improved machines at the Royal Cornwall Polytechnic Society; it was six inches in length, and contained about a mile and a half of fine secondary wire; it was wound upon a hollow bobbin of wood, covered with gutta-percha, and having its centre large enough to contain the primary coil with its iron core. The secondary wire was covered with silk, and the layers insulated from each other with oiled silk and gutta-percha; it was provided with a condenser, gave sparks between the terminals more than one inch in length, and charged a Leyden jar containing three square feet of surface, so as to give a torrent of brilliant discharges between platinum terminals. For this instrument Mr. Hearder received the Society's first silver medal.

"In September, 1856, Mr. Charles Bentley showed the writer a coil of his own construction, which gave sparks between terminals of silk-covered wire an inch and a half long, the primary being excited by five of Grove's cells. In building up this coil he used, as an axis, a hollow iron tube, nine or ten inches in length, and half an inch in diameter; round this he arranged a considerable number of insulated wires, the same length as the tube, and sufficiently numerous to form a bundle of an inch and three-quarters in diameter. This core was insulated by being covered with six or eight layers of waxed silk. Thirty yards of No. 14 cotton-covered copper wire were then wound carefully round the iron core, forming two layers, which were then insulated from each other by eight thicknesses of waxed silk. The secondary wire consisted of 3,000 yards of No. 35 silk-covered copper wire, and the coils which it formed were insulated by several layers of gutta-percha tissue; it was wound so as to leave a space of about one-sixteenth of an inch at either end of the coil beneath, so that it formed a cylinder with rounded ends—a form preferred, from its obviating the necessity of glass checks for keeping the wire in its place. The condenser, which was contained in a separate box, consisted of 100 sheets of tinfoil, 4 × 9 inches, each sheet of foil being placed between two sheets of carefully-varnished paper, and the alternative ends connected with appropriate binding screws.

"The induction coil, as now constructed by Mr. Ladd, which is shown in annexed engraving, consists of the usual 'primary,' which is of covered copper wire, ·10 inch in diameter, or No. 12 wire gauge, wound into a coil of three thicknesses, enclosing a bundle of iron wires 1·8 inches in diameter; the ends of this fasciculus project ·7 inch beyond the gutta-percha ends, which are seven inches in diameter and ·6 inches thick; these gutta-percha discs are firmly fixed on the base-board of the machine, and serve both to support and to insulate the coil. The 'secondary' is a coil of No. 35 silk-covered wire three miles long; it is very carefully wound round the primary in about 30 layers, each layer insulated from its neighbour by a sheet of gutta-percha. The total length of the coil is 11 inches, and its diameter, including the velvet jacket, five inches. The ends of the secondary pass through one of the terminal gutta-percha discs to an insulated discharger, the arms of which move in ball-and-socket joints, so that the terminals may be separated any distance from one another up to about four and a half inches. The arm in connection with the wire proceeding from the *interior* of the coil is provided with an ivory handle, with which the arm may be moved; the other arm, in connection with the *exterior*, terminates in a brass knob; this must not be touched while the machine is in action, if the operator wishes to avoid a powerful and painful shock. One of the ends of the primary is brought out through the anterior and the other through the posterior gutta-percha disc, to two brass studs, from which they are conducted underneath the wooden base to the commutator and the contact-breaker. The wires from the battery (five pairs of Grove's arrangement, immersed platinum 5½ × 3 inches), are attached to two binding screws, one on either side of the contact-breaker, as shown in the engraving. The condenser is conveniently placed in a box underneath the base of the instrument, to which it is firmly attached. It is composed of about fifty sheets of tinfoil, 18 × 8 inches, and between each sheet is laid a sheet of varnished paper; one-half of the foil is in metallic connection with each side of the break, so that when contact is broken the interrupted ends are respectively in metallic communication with the opposite coatings of the condenser."

The contact-breaker of the improved coil is so constructed, that it gives the operator the means of setting up a greater or less resistance to the attractive force exerted by the magnetic iron core, and thus increase or diminish the strength of the induced current. The instrument above described gives between the terminals of the secondary, when the spring of the contact-breaker is relaxed, thin thready sparks, about 1½ inch long; but when the spring is strained to the utmost, brilliant flashes of fire, upwards of four inches long, pass continuously. In the engraving, the inductive discharge is represented as passing through one of Geissler's spiral vacua tubes, in which 25 bulbs have been blown. For full details of the beautiful phenomena observed during the discharge in vacua, we must refer those interested in electricity to Dr. Noad's little book.

Chemical Tables.—By Robert Galloway, F.C.S.—London: John Churchill (Second Edition). 4*s*. 6*d*.—These tables are intended for schools and lecture-rooms, being printed on five large sheets, in characters so bold and distinct that they may be distinguished at a considerable distance. The first, which covers two sheets, is a Table of the Elements, giving the names of all the different metalloids and metals, the chemical symbols, the atomic weights, and the specific gravities. The names of the rare elements are printed in italics. The second table gives the names, colours, and symbols of the various basic substances; the third, the names, properties, and symbols of the more important acids; and the fourth exhibits the general formulæ of the more important salts. These tables ought to be affixed to the walls of every school-room in which the natural sciences are taught, and they would certainly not be out of place on the walls of any pharmaceutical laboratory. Lecturers on chemistry may feel particularly obliged to the excellent chemist of the Dublin Industrial Museum, for having saved them a vast expenditure of Indian-ink, time, and trouble.

The Grocer. A Weekly Trade Circular. 4*d.*—We have to announce the appearance of a new and important periodical, which will watch over the interests of the grocery trade as carefully as we watch over those of another branch of industry. So we judge from the two numbers which have already appeared. The journal is the size of the *Lancet,* and is filled with original articles, by first-class writers, on matters directly relating to the trade which it represents. The reports of the Mincing-lane markets are given so fully that we have thought it advisable to remove from our Price Current all articles which belong only to the grocery trade. We have no desire to trespass on the province of a journal which is working with us to improve the general trade of this country. On a future occasion we shall enter more fully into the special merits of our new contemporary.

NEW BOOKS.

Archbold (John Frederick).—The Law of Bankruptcy and Insolvency, as founded on the recent Statute and General Orders of the Bankruptcy Court and County Courts. 15*s.*

Baker (Charles).—The Circle of Knowledge: a Scientific Class Book, illustrated with 330 Woodcuts. Gradation IV. 12mo, pp. 550, cloth, 4*s.* 6*d.* (Wertheim.)

Newman (Edward).—A Familiar Introduction to the Study of Polarized Light. 3*s.*

Page (James).—The Fractional Calculator. Fifth Edit. 4*s.*

Pepper (John Henry).—The Boy's Playbook of Science. New Edit. 6*s.*

Percy (John).—Metallurgy: the Art of Extracting Metals from their Ores, and adapting them to various purposes of manufacture. First Division—Slags, Fuel, Fireclay, &c., Copper, Zinc, and Brass. 21*s.*

Sharp (William).—Letter to Sir B. C. Brodie, in reply to his Letter upon Homœopathy, in *Frazer's Magazine* for December. 2*s.* 6*d.*

Sowerby's British Wild Flowers.—Re-issue. Monthly Parts. 3*s.*

PUBLICATIONS RECEIVED.

A Manual of Chemistry, Descriptive and Theoretical. By William Odling, M.D., F.R.S. Part I. (A long review of this remarkable work will appear in our next.)—Oxygen, a Remedy in Disease. By George Barth—Pharmaceutical Journal—Weldon's Register—Dublin Hospital Gazette—The Grocer—The Geologist—Practical Mechanics' Journal—The Artizan—Scientific American—American Druggists' Circular—American Journal of Pharmacy—American Journal of Science and Arts—American Medical Times—American Stock Journal (New York)—Medical and Surgical Reporter (Philadelphia)—Boston Medical and Surgical Journal—Tilden's Journal of Materia Medica (New Lebanon)—San Francisco Medical Press—Chicago Medical Examiner—Chicago Medical Journal—Revista Farmaceutica (Buenos Ayres)—Bulletin de la Société de Pharmacie de Bordeaux.

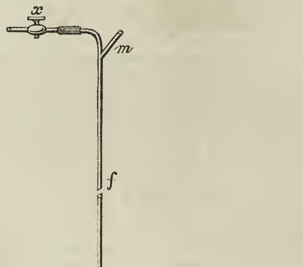
MUMMIES are employed, according to Landerer, by the Oriental empirics, in rheumatic and arthritic complaints, in the form of ointment, composed of oil and powdered mummy. The powder taken internally with wine, is regarded as a diaphoretic.—*Amer. Jour. of Phar.*

NOTES OF NOVELTIES

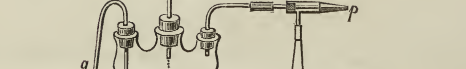
DR. H. SPRENGEL'S LABORATORY BLOWPIPE.

Dr. H. Sprengel has, in a recent number of Poggendorff's *Annalen*, described a very convenient blowpipe, which will be found of great use in all laboratories in cities, or other situations where there is an abundant supply of water and of coal gas.

It may be regarded as an admirable and self-acting substitute for the common mouth blowpipe, and may also be employed to heat small crucibles, or for fusing refractory substances.



In the engraving the letter x represents a cock, which regulates the supply of water falling down the perpendicular tube f, the small branch m being a tube of similar diameter, open above, through which air is drawn in, by the descent of the water in f. The tube f should be from 40 to 60 inches long, and about one-third of an inch in diameter. The mingled stream of water and air passes into the three-necked bottle A, the capacity of which should be rather less than a quart. When the mixture reaches the bottle an immediate separation occurs; the water, which in the first instance collects in the bottom, flows out through the syphon g, the diameter of which is equal to that of the tube f; the air in the bottle being forced out through the tube k, by the pressure caused by the constant descent of water and air through f. The current of air flowing through k is con-



veyed to the centre of a flame of coal gas, burning at *p*, from the opening of one of Maugham's burners. The arrangement of the tubes forming the burner is shown more clearly in the enlarged view, where *o* shows the air tube from the bottle, and *r*, the gas tube from the main.

In consequence of the intense heat generated, it is desirable that the tip of the external tube should be formed of platinum, but all the other parts may be of glass or brass. It is necessary that the corks used in connecting the different parts should be very sound and accurately fitted; and great care is requisite in finishing the orifices of the two tubes, as the regular form of the flame depends on their accurate adjustment.

The amount of water required varies with the force with which it is necessary to urge the flame.

THE MONTH

Poisoned Wheat.—Several letters condemning the use of poisoned grain by farmers have recently appeared in the columns of *The Times*, and as they have doubtless escaped the attention of most of our country subscribers, we extract from them the most important passages. Mr. T. W. Booth, a magistrate in Lincolnshire, writes:—"I have for many years endeavoured to impress upon the farmers of my neighbourhood the danger of using arsenic, or mercury, as they call it, in the preparation of seed wheat. The death of partridges and other birds from this cause has often come under my notice; also the mischief to poultry in farmyards, and even to farmers themselves and their families: for the carelessness of many in the use of this deadly mineral is inconceivable. I have known seed corn prepared with it on barn floors, where it has sunk into the crevices, the grain being placed in sacks (for conveyance to the drill), which are often afterwards used as if nothing deleterious had been put into them, and hence much sickness may, and no doubt does, arise. A small farmer of my acquaintance, not long ago, having doctored more corn than he required, *washed* the surplus and sent it, with some other wheat, to be made into flour; but it nearly killed him and his family—to say nothing of the damage to those whose grists followed his upon the millstones. As wheat, without some preparation, is certainly liable to smut, I shall be obliged if you will allow me to mention one which I have always found effectual—viz., soaking the seed for a few minutes in a tub of lime water, sufficiently strong to float an egg. It should be done at least twelve hours before using, so that it may become dry enough to run through the drill, and, if spread thin upon a barn floor, its power of vegetation will be unimpaired for several days. This plan is adopted by some of our best agriculturists, and has the advantage of eliciting from the seed wheat all hariff and noxious weeds, which swim at once on the surface."

Mr. Hewitt Davis writes in the same strain against the use of poisonous seed wheat, and questions its supposed advantages. "My own practice, as a farmer for many years," he says, "was to use copperas, arsenic, and other mineral poisons in preparing my wheat for seed, as a means of preventing smut, burnt ears, and other diseases from the growth of parasites on the corn, coming under the name of 'uredo.' I was told that these powerful mineral poisons destroyed the sporidia of disease without injuring the sound seed. But seeing the sad consequences in the game-fields and rookeries, and one year losing nearly all my young turkeys, from their getting into a field newly sown with wheat, I was led to ask how it was possible that seed corn could be benefited, and the seed of parasites be destroyed by the use of poisons, shown by the growth of the corn to be so innocuous to vegetable life; and I came to the conclusion that the benefit from dressing of seed corn was due to the cleansing that it got in the process, and not to any effect of the poison upon the seed; and for many years afterwards my practice was to well wash the seed corn in sufficient water to cover it, and allow all the lighter grains and seeds, &c., to float, and be skimmed off. In this way a complete separation of the sound grains from the diseased and noxious matter that often accompany it takes place; for the former all sink, while the latter float and are easily separated by well stirring and skimming. From this practice I found all the success I ever had from using poisons; indeed, I may say much more, for in this way all that was obnoxious was more easily got rid of. It is idle to suppose that any mineral poison can be destructive of uredo, which is known to have a vegetable growth with the grain, and yet be innocuous to the seed corn, the germ of life being the same in both. I believe the practice of poisoning bread corn is one that greatly calls for repression. The practice of washing and drying wheat after it has been prepared for seed, and then throwing it into bulk for market, your readers will see is not unlikely to often occur, and who can tell what mischief may not spring from allowing arsenic to be used for such purposes?"

Mr. C. F. Humbert, of Watford, in commenting upon this general practice, calls attention to the fact that "poisoned wheat" is regularly advertised and sold in packets expressly for the destruction of the gardener's and farmer's supposed enemies, the small birds. In alluding to the increasing use of this article, he says:—"The cruel and wanton war of extermination is waged by the non-thinking against small birds in general, but also sometimes by the agriculturist against that serviceable old fellow the rook in particular. By such means a whole rookery near my house has been destroyed, and the poor dead birds lie about the fields, a sad memorial of ruthless ignorance. By drawing public attention to this important subject, I hope to encourage public sympathy for my feathered friends, now that the evil resulting from the practice of destroying the 'balance of power,' by killing the small birds in France, has been clearly established and made public."

Paraffin Candles.—The following letter, relating to the manufacture of candles from the new oils lately introduced, has been addressed to a contemporary by Messrs. J. C. and J. Field, of the Candle Works, Lambeth Marsh:—"We observe that a circular recently issued by us, making public the results of an examination, by Dr. Letheby, of the qualities of our paraffin candles, has come under your notice, and while confirming, as candle manufacturers, your statement as to the value of the material, we think it only just to inform you, with reference to the sources of supply, that while the oil wells of America may, in the future, furnish large supplies of solid paraffin, the quantity put on this market has hitherto been quite inconsiderable in comparison to that produced in Scotland from coal, under the patent of Mr. James Young, of Glasgow, to whom the credit is due of being the first to produce and perfect, for burning and machinery purposes, the now well-known paraffin oil, and from whose paraffin the candles on which Dr. Letheby reports are mainly manufactured."

Poisonings.—*By Prussic Acid.*—On Tuesday, the 31st ult., an adjourned inquest was held at Bury on the body of James Smith, aged 62 years, beerseller, Woolfold, whose death had taken place suddenly. At first it was supposed that he had died from disease of the heart, but the landlady having found amongst the ashes under the grate a bottle which had evidently contained prussic acid, suspicion was created that the deceased had poisoned himself. Another circumstance calculated to strengthen the suspicion was the fact that on the person of the deceased was found a letter which he had written, and addressed to his wife, giving her instructions that when he was dead she was to receive £10 from a friendly society, and £116 10*s*. from the European Assurance Society. He also gave instructions as to the collection of rents due, and recommended that his property should not be divided until his youngest child was 21 years of age. A *post-mortem* examination of the body, and a chemical analysis of the contents of the stomach, proved that prussic acid had been taken. The case excited some interest, because it was supposed that if the jury gave a verdict of *felo de se* the insurance policy would be forfeited, but as it appeared that six years ago deceased had his skull fractured by a railway accident, it was supposed that the injuries might be such as to produce temporary mental derangement, and the jury therefore returned a verdict accordingly.

A coroner's inquest was lately held at Kentish Town upon the body of Mr. Francis Robert Smith Upjohn, aged 49, residing as assistant-surgeon with Mr. David Winstone, at 8, Wellington-road, Kentish Town. Miss Upjohn, daughter of the deceased, stated that, although her father resided with Dr. Winstone, her mother and the other members of the family lived at 99, Carlton-road. She last spoke to her father on Saturday, December 7. She declined to say what then took place. On Wednesday her little brother delivered a note from her mother to her father. On Friday the family were apprised of his death. Dr. Winstone stated that the deceased, when he came to him, three months ago, was of regular habits. He had since been in the practice of taking laudanum in small quantities, and in consequence was often in a stupid state, as if inebriated. On Thursday, about midnight, witness returned from the country, where he had been since the preceding Sunday. The deceased was then well. On Friday morning, shortly after nine, the housemaid rushed into the sitting-room, exclaiming, "Dr. Upjohn is dead." Witness immediately went to the room, and found the deceased dead in bed. A bottle of prussic acid lay on the floor, and there could be no doubt that his death was caused by that poison. It was probable that the deceased had taken the prussic acid bottle by mistake for that from which he was in the habit of taking laudanum, as both bottles were of the same size, and might have been standing together on the surgery table. The jury, after adverting to the hesitating manner in which Miss Upjohn had given her evidence, returned an open verdict, to the effect that the deceased died from the effects of prussic acid, there being no evidence to show whether the poison had been taken purposely or by mistake.

Alleged Poisoning of a King and a Prince.—We extract the following from the *Lancet*:—"The calamitous deaths of the late King of Portugal and his Royal brother from the attacks of typhoid fever, have produced an excitement in Lisbon which may be easily understood. Recent telegrams announce that a Sanitary Commission had been nominated, which was charged with the duty of examining the sanitary condition of the Royal residences, and suggesting any necessary improvements. This was, indeed, a most fitting measure; for as the disease is one probably generated by filth, and undoubtedly fostered by defects of drainage, putrid emanations, and vitiated air, the labours of an intelligent commission would be most valuable in preventing the perpetuation of its causes. Late despatches announce that a more serious turn had occurred in public opinion; that rumours of poisoning had spread widely amongst the people, and had assumed so much consistency in their minds that they had rioted in the streets, and rushed to the druggists' shops and there destroyed all the poisonous drugs on which they could lay hands. The body of the King has been consequently exhumed and analytically examined. Without pretending to prejudge the extraordinary question thus painfully raised, this is the place to recall the fact that a similar outcry of suspected poisoning has been several times raised in cases of an isolated outbreak of typhoid fever, and that such suspicions have not proved to be correct."

By Rat Poison.—Recently T. Chick, aged 34, who resided in Horselydown, being ill with a fever, poured some water into a teacup which his wife had placed on the table, containing arsenic, to poison some rats, and drank it. Death was the result.

By Artificial Flowers.—We were compelled to omit from our last number the report of an inquiry held on the 25th November, by Mr. G. S. Brent, touching the death of Matilda Scheurer, who died from poison, imbibed into the system during her engagement in the manufacture of artificial flower-leaves. As this case has attracted considerable attention, we now, at a somewhat late date, give the abridged report, which appears in the *Pharmaceutical Journal*:—"Mrs. Louisa Scheurer, a widow, and mother to the deceased, deposed that on Thursday week her daughter was taken ill. She was seized with vomiting, and the refuse of the stomach was of a very greenish colour. The witness took her to a doctor on the following morning, who told her she was again suffering from the effects of poison. She had been ill several times before, complaining of pains in the stomach and chest, and sickness, for the last year and a half. She was engaged as an artificial florist, in the warehouse of M. Bergeron, of Judd-street, Brunswick-square, and up to the time of her death she had been engaged in the leafmaking. She was in the greatest pain until she became insensible, when death put an end to her sufferings. Mr. James Thomas Paul, surgeon, of 26, Burton-crescent, said he had attended the deceased four times within eighteen months, while suffering from the same causes. He had made a *post-mortem* examination, and found that the lungs gave evidence of the presence of arsenite of copper, the liver being highly impregnated, as also the mesenteric glands. The cause of death was acute inflammation of the mucous membrane of the stomach, produced by the inhalation of the arsenite of copper. A sister of the deceased had died under similar circumstances. M. Bergeron said he employed 98 girls in his establishment, and for their protection he had suggested the wearing of masks, but it was objected to by them as producing excessive heat. They, however, wore muslin over their mouths. It was stated by a juror that the arsenite of copper in such manufactures was prohibited in France, as injurious to workpeople. The jury returned a verdict to the effect that the deceased died accidentally, from the effects of mortal disease in her stomach and other organs, occasioned by arsenite of copper, used in her employment."

Attempted by Strychnine.—From the same journal we extract the report of a case tried before Mr. Justice Wightman, at York, on the 13th ult.:—"Richard Buckle, 35, was charged with having, on the 11th of July, at Middlesborough, attempted to administer poison to his wife, with intent to murder her. Mr. Blanchard and Mr. Serle appeared for the prosecution, and Mr. Maule for the prisoner. It appeared that the prisoner, up to July last, was a policeman, at Middlesborough, and on the day in question he told his wife he had been talking to Hopper, the gatekeeper at the railway crossing, and that he (Hopper) had given him a powder for her to take. The wife said she was not ailing anything, objected to take it, and said she would wait until the next night. The prisoner told her, in answer to a question, that the powder was in his coat-pocket; also that it was nearly all sugar, but it was bitter; that she was to take it in gin and treacle, and to be ready to get into bed before she took it. A suspicion was aroused in Mrs. Buckle's mind, and next day she took the powder out of her husband's pocket, and went with it to Mrs. Rayner, a near neighbour. The powder was put into another paper, and in the paper which had contained the powder was placed instead some sugar and flour, in order that it might resemble the powder as much as possible. The powder found in her husband's pocket consisted of sugar and strychnine. It appeared that some time previous to this, Buckle saw Mr. Henry Landon, a druggist, and asked him the best means of poisoning a dog. Mr. Landon told him that he had a few days before poisoned a dog with strychnine. A few days afterwards the prisoner called at Mr. Landon's shop for some strychnine, and asked how much was sufficient to poison any person. Mr. Landon replied, a grain, and gave the prisoner from 15 to 20 grains, for which he paid 6d. It was wrapped in a piece of white paper, and over the ends was placed a printed label 'Poison,' so that the poison could not be taken out without destroying the label. Previous to this the prisoner had induced his wife to take some laudanum, which had made her very ill. It was also shown that Hopper had never supplied the prisoner with a powder. For the defence it was urged that there had been no act done by the prisoner which constituted an attempt to administer the strychnine to his wife. His lordship said it appeared to him that the case, as it stood, failed on the evidence adduced. The jury thereupon *acquitted* the prisoner. The prisoner was committed on another charge, of administering laudanum to his wife, on the 29th of June, with intent to murder her. By direction of the taxing officer, to save expense, a second bill of indictment was not sent up to the grand jury against the prisoner. Mr. Blanchard stated that as the grand jury were now discharged, and another bill could not be preferred, he felt there had been a failure of justice for which he was not responsible. Mr. Maule applied for the prisoner's discharge. His lordship said, as the evidence had turned out, the case as to the charge of administering laudanum was the stronger of the two. It was a most unfortunate mistake that no second indictment had been preferred at these assizes against the prisoner, and he thought it his duty to remand the prisoner for trial at the next assizes, but reasonable bail would be accepted."

Illness of the late Prince Consort.—Our medical contemporary the *Lancet* of January 4, has an important article on the bulletins issued by the physicians who attended the illustrious patient in his illness, the fatal termination of which has occasioned so much real mourning. An appeal is very properly made for an authentic account of the malady the progress of which is so imperfectly indicated by the bulletins. After putting together the documents signed by the physicians, our contemporary makes the following observations:—"We will not sum up coherently these scattered documents, because in doing so we might seem to accuse the physicians, which we certainly desire not to do. But we will ask those distinguished men just to consider what effect upon the mind of the profession such a series of documents are likely to produce if unexplained. Here is an account of a disease which begins on the 8th with 'feverish cold;' which on the 11th is unattended by unfavourable symptoms; and on the 14th kills, the term 'typhoid fever' then first officially appearing. It would be wrong to infer that this disease, being 'typhoid fever (21 days)' from the first, was mistaken for a 'feverish cold' until the 11th December, or eighteenth day of the disease: but so the medical attendants seem here to represent to the world. Indeed it is clearly impossible to give a fair clinical history of a disease in five bulletins addressed to the public, and therefore necessarily drawn up in very general, if not even vague, terms. The medical attendants upon the Prince, therefore, cannot have fairly represented themselves to the world in the accounts thus published. It must be remembered that during the illness of so illustrious and beloved a personage, the greatest desire prevailed to modify the language describing his malady, so as to keep clear of raising anxieties and fears that might not be justified by final events. It is in the highest degree desirable to satisfy the reasonable demands of the profession and of the public, by permitting the physicians to place upon record an authentic medical history of the fatal illness, which, as affecting a personage of national and historical interest, ought without delay to be removed from all shadow of doubt or ambiguity."

In the *Lancet* of last Saturday, the following announcement is made:—"We are officially informed that the authentic and coherent account of the illness of the Prince Consort, for which the profession and the public have manifested an anxious desire, will for the present be withheld. This is to be regretted on every account. It cannot be said that the public, which had a claim to daily bulletins of the illness during its progress, has none to such a statement as may explain and reconcile the unavoidable imperfections of these documents. The impression produced by the silence maintained in the presence of public questioning on this subject cannot fail to be painful. It leaves open to various conjectures a matter on which there should rest no shadow of doubt."

Trade Notes.—Messrs. R. Rouse and Co., of Wigmore Street, warn the trade against any supposed customer who may bring in a prescription for pills and mixtures, requesting that the medicine "with a bottle of Cod-liver Oil" may be sent to some well-known address in the immediate neighbourhood, and who will take away "a pint bottle of the finest Eau de Cologne," about the quality of which the said customer appears exceedingly anxious, as Mrs. —— (the name on prescription) is "very particular about it." Of course Mrs. —— does not exist at the address given nor anywhere else.

Our contemporary the *City Press* notices the fact that Messrs. Morgan Brothers, of Bow Lane, entertained their staff of *employés* at the annual stock-taking supper, at the Anchor, in Cheapside, on Saturday night. After the cloth was removed, the toast of "Prosperity to the Firm" was proposed, and duly responded to with acclamations, and the remainder of the evening was pleasantly diversified with recitations and songs. Upwards of 120 were present, and the hearty good-fellowship manifested on all sides must have been very gratifying to all parties concerned.

Proposed Monument to Sir Humphry Davy.—A committee of working men, which has recently been formed for the purpose of erecting a monument at Penzance to Sir Humphry Davy, have received eight designs from eminent architects, of which those of Messrs. Salter and Perrow have been selected. These designs are two in number: a monumental column surmounted by a bronze statue ten feet in height; and a monumental tower, with an internal staircase, and surmounted by the same figure—the height of the monument, from the base to the summit, to be 120 feet in either case.

Correspondence

PARIS.

(FROM OUR OWN CORRESPONDENT.)

January 7th, 1862.

THE official returns of imports and exports for the month of November and first eleven months of the year, exhibit the following points deserving attention:—

The quantity of dye woods imported in November was 2347 tons, or nearly the same as in the previous month, and nearly the whole of it paid duty, and was taken into consumption. As explained last month, this article not having been distinguished in the returns of former years, no comparison can be made; other materials for dyeing are not, however, in the same condition.

Cochineal was in considerable demand, the imports being much larger than usual, namely, 80 tons against 30 in the same month last year, and the amount taken for consumption 51 against 33 tons; the stock at the end of month was considerable, namely, 33 tons; last year at the same date it was only 6½ tons.

Indigo presents a decided contrast; in this case the arrivals were only about two-thirds of those of last year, and the quantity cleared less than half; the stock on hand is, however, very small, only 7½ tons against 8½ last year, and 387 in 1859.

The oil and oil-seed trade exhibits some remarkable contrasts. The arrivals of olive oil during the month were little more than half those of last year, while the quantity on which duty was paid was considerably larger than last year; the consequence is, that the stock now stands at 1588 tons against 4734 last year. As regards seed oils the case is different; the supply fell about 25 per cent., and the quantity taken for consumption nearly 50 per cent.; the stock is not given, but it must have increased to an important extent.

The import of linseed amounted to 2969 tons against 4648 last year; and the quantities cleared bore about the same relative proportion. In the case of sesame the arrivals were more than 50 per cent. beyond those of last year, while the quantity cleared increased in like proportion, and exceeded the imports by about 30 per cent.; but it is in the unenumerated seeds that the greatest augmentation appears, the arrivals having been 4987 tons against 1976 last year, and the quantity cleared 4596 tons against 667. The stock of linseed is much lower than it was last year, while that of sesame is 50 per cent. higher, and of the miscellaneous oleaginous seeds about the same. Arachides continue to increase in supply and demand, both having been augmented nearly cent. per cent.; the quantity cleared in November was no less than 3242 tons.

Hops were also in increased demand, the imports and consumption being nearly three times those of last year; at the same time the stock at present is nearly three times as large as it was at the end of November, 1860.

The import of nitrate of potash was only 5½ tons during the month, just half that of last year; while that of nitrate of soda was 866 tons against 516, and the consumption in about the same proportion. At the end of the month the stock of both was excessively low, there being only about 28 tons of each on hand, against 153 of the former and 84 tons of the latter article at the same time last year.

The arrivals of sulphur rose from 1858 tons last year to 2631 during the same month of the present year, while the quantities taken into consumption were just equal. Upon the present occasion the supply and demand were also equal to each other; the stock is lower than usual.

The salt markets have been unusually brisk, the arrivals having amounted to 2782 tons against 725 last year; scarcely any of this was cleared for consumption. It deserves notice that a considerable trade in refined white salt seems to be growing up here; the quantity imported during the month having been 467 tons against a single ton last year.

The export returns contain but little matter of interest to the chemist and druggist, the enumerated articles being but few. Salt is the most important, and shows an immense increase as regards the Belgian, Norwegian, and Brazilian trade, with a falling-off in some other cases, notably those of Germany and Switzerland.

Nitrate of potash exhibits a diminution, and nitrate of soda a considerable increase.

Dyewoods were exported to the extent of 4736 tons during the month.

Cochineal and indigo show a large increase, but madder a considerable falling-off.

The following is the official list of the enumerated drugs and chemicals, sent from France to Great Britain and Ireland during the three periods into which the month is divided by the officers of the *Douane* here:—

		Periods ending		
		30th Nov.	10th Dec.	20th Dec.
Paris by Boulogne to London—				
Drugs	tons	20	—	—
Solid bitumen mixed with earth	,,	—	—	200
Marseilles to London—				
Medical Roots	,,	—	11	—
Cream of Tartar	,,	—	1	—
Marseilles to Liverpool—				
Oleaginous Seed	,,	—	10	—
Rosins	,,	—	53	—
Medical Roots	,,	—	4	—
Madder	,,	—	9	—
Annatto	,,	—	—	2
Bayonne to Liverpool—				
Common Rosin, Pitch, &c.	,,	106	—	61
Bayonne to London—				
Common Rosin	,,	155	—	—
Bordeaux to London—				
Pure Exotic Gums	,,	2	—	—
Turpentine	,,	18	—	165
Ditto, compact	,,	—	—	6
Olive Oil	,,	7	—	—
Rosin, Pitch, &c.	,,	—	—	129
Spanish Juice	,,	1	—	1
Annatto	,,	—	—	7
Medical Roots	,,	4	—	—
Madder, in powder	,,	—	—	36
Verdigris, dry	,,	1	1	½
Indigo	,,	—	—	1
Perfumery	,,	⅓	½	—
Almonds	,,	—	4	—
Bordeaux to Liverpool—				
Almonds	,,	3	—	—
Pure Exotic Gums	,,	29	—	—
Rosin, Pitch, &c.	,,	50	—	—
Turpentine, compact	,,	25	—	—
Ditto, liquid	,,	9	—	—
Common Black Rosin	,,	141	—	—
Madder, in powder	,,	23	—	—
Ditto, extract	,,	13	—	—
Cream of Tartar	,,	4	—	—
Verdigris, dry	,,	½	—	—
Bordeaux to Glasgow—				
Almonds	,,	2	—	—
Pure Exotic Gums	,,	2	—	—
Rosin, Pitch, &c.	,,	21	—	—
Turpentine	,,	21	—	—
Common Rosin, &c.	,,	20	—	—
Madder, ground	,,	16	—	—
Cream of Tartar	,,	15	—	—
Extract of Madder	,,	19	—	—
Bordeaux to Bristol—				
Rosin, &c.	,,	—	—	143
Cream of Tartar	,,	—	—	5
Perfumery	,,	—	—	1-10th
Bordeaux to Sunderland—				
Rosin, Pitch, &c.	,,	—	15	144
Common Rosin, &c.	,,	—	79	99
Indigo	,,	—	—	1-10th
Boulogne to London—				
Indigo	,,	2	—	—
Perfumery	,,	2	5	4½
Hops	,,	—	—	3
Mineral Waters	,,	—	—	8½
Calais to London—				
Perfumery	,,	1	2	¾
Rouen to London—				
Sulphate of Iron	,,	—	—	72
Dunkirk to Hull—				
Madder	,,	14	7	6
Dunkirk to London—				
Seed Oil	,,	—	—	8½
Dunkirk to Leith—				
Madder	,,	—	—	29

The French Government has determined to have the Pharmacopœia completely revised; that at present in use was published in the year 1837. A commission has been appointed to carry out this most important object, and the following list of professors composing it, promise well for the execution of the work. M. Dumas, of the *Institut*, M. Grisolle, professor of materia medica and therapeutics, M. Regnault, professor of pharmacology, M. Tardien, professor of legal medicine, M. Wurtz, professor of medical chemistry—all of the faculty of Paris; M. Bussy, professor of chemistry, M. Chatin, professor of botany, M. Guibourt, professor of natural history, M. Le Canu, professor of pharmacy—all of the High School of Pharmacy of Paris; and MM. Petit and Mourier, high officers under the Minister of Public Instruction. To these are added as a consulting council, three eminent members of the Imperial Academy of Medicine—MM. Robinet, Boudet and Gobley, and MM. Mayet and Mialhe, pharmacians of Paris.

The concluding part of the new French *Universal Dictionary of Commerce and Navigation*, contains an account of the chemical manufacture and import and export trade; by this it appears, that while the largest chemical works in France, those of St. Gobain, consume 23 millions of kilogrammes of coal, 10 of marine salt, 5 of sulphur, and 3 of manganese, and in all 52 millions of all kinds of raw material; one establishment at Glasgow uses up 90 of coal, 17 of salt, and 5½ of sulphur, and 4½ of manganese. As regards the import and export trade, it is stated that in 1859 France imported only 19,451 kils., of which 13,773 came from England, the whole being valued at about £545,796; while she exported 1,251,178 kils. of chemical products, not denominated, of which Belgium took one-third, Spain a sixth, and Switzerland a tenth, the total value being £1,464,036. Besides this she exported more than a million kils. of pharmaceutical preparations, of which the value is not given. The imports and exports of the year 1859 were very nearly double those of 1855. The same work contains special articles on each of the principal products.

As usual, at the close of the year, the wholesale markets have been excessively dull, and a review of the past year presents a very sombre picture. All eyes are now turned forwards, and the issue of the complaint made by the British Government against the American Captain of the *San Jacinto* is awaited with great anxiety; this has, however, diminished here within the last day or two, and the Paris wholesale markets begin to show promise of improvement.

The oil market is one of the most important here, and the price of Colza (French rape) rose a franc on Saturday last, but little business was done; this affected linseed also, though in a less degree. No other changes worthy of note.

To the Editor of the Chemist and Druggist.

THE SALE OF LAUDANUM.

Carlisle, Dec. 19th, 1861.

Sir,—At the meeting of the Society of Chemists and Druggists, as reported in your journal of last month, attention was drawn by Mr. Walters, of Derby, to the practice of grocers and small shopkeepers selling drugs. As I am situated not far from a populous and poor district, where such shops are numerous, I have ample opportunity of observing the kind of drugs these shopkeepers retail; and it is to one particular article, which of all drugs stands most prominent, namely, laudanum, I wish now to draw the attention of your readers. I think there cannot be any fault found with the above classes of shopkeepers selling such articles as Epsom salts, cream of tartar, castor oil, or senna, which articles, combined with laudanum, seem to be the chief commodities of the small shopkeepers, in the drug line, in this part. But it is sad to see the poisonous drug laudanum, which is fraught with so much mischief when not properly used, in the hands of, generally, a class of persons who know nothing about it except that it is labelled "poison," and set forth in their windows with almost as much conspicuousness as Everton toffy or fancy cakes, and often recommended, with the greatest perseverance, as the panacea for the cure of all diseases, no matter of what kind or of what nature. The quantity of laudanum sold by the above kind of shopkeepers is really surprising. I know one man who buys it by the gallon, another who sells from 24 to 32 ounces weekly; and the use that a large quantity of this is put to is certainly very degrading, for I have been informed by some that the bulk of it is consumed by unconscious infants in the arms of their mothers; and I know, from my own experience, that the quantity given to children is very great. The mothers give it simply, as they say, to keep them quiet, as the drug alleviates the griping pains their children are so much subject to. The children soon get habituated to the drug, and the mothers soon find that the cure is worse to get rid of than the disease. It surely, then, becomes the duty of all respectable chemists and druggists, who can in any manner consider the injury that must be done to the delicate nervous systems of those children who are habituated to the drug, to stop the wholesale sale of laudanum, and do all in their power to discountenance the retail of it themselves for such like purposes, and advise mothers to use more cleanliness and care—practices which are not much adhered to in populous and crowded districts, and the want of which is the chief cause of the majority of diseases that their children suffer from, and to alleviate which laudanum is used.

Yours obediently, Kappa.

"UNITED SOCIETY OF CHEMISTS AND
"DRUGGISTS.

"2, Bell Yard, Doctors' Commons, E.C.
"London, 13th January, 1861.

"Sir,—In your last number you alluded to the forthcoming anniversary meeting of this Society.

"In reference thereto, will you allow me to state, that the Executive Committee propose to convene the first annual meeting of the Society at the Freemasons' Tavern, Great Queen-street, sometime towards the close of next month, for the purpose of submitting a general report to the notice of the members which will afford most gratifying evidence of the progress of the Society.

"At the close of the meeting, the Committee propose having a dinner in support of the Benevolent Fund, to which they earnestly invite all those members and friends who can make it convenient to attend. Tickets for dinner and dessert 7s. 6d. each.

"The exact day and time of meeting will be announced in your next number, and in the meantime the Committee will be glad to receive a communication from those gentlemen who purpose to favour them with their kind attendance on this occasion,

"I am, Sir,
"Your most obedient servant,
"C. F. Buott,
"Secretary."

NOTES AND QUERIES

FORMULÆ.

Parrish's Compound Syrup of Phosphates. (W. L. N., Cheltenham.)—Take of protosulphate of iron, ʒx; phosphate of soda, ʒxij; phosphate of lime, ʒxij; phosphoric acid glacial, ʒxx; carbonate of soda, ℈ij; carbonate of potash, ʒj; muriatic acid, water of ammonia, of each sufficient; powdered cochineal, ʒij, water sufficient; sugar, lb.ij ℥viij, offic.; orange-flower water, f℥j. Dissolve the sulphate of iron in f℥ij of boiling water, and the phosphate of soda in f℥iv of boiling water. Mix the solutions, and wash precipitated phosphate of iron till the washings are tasteless. Dissolve the phosphate of lime in f℥iv of boiling water, with sufficient muriatic acid to make a clear solution; when cool add water of ammonia and wash precipitate. To the freshly-precipitated phosphates as thus prepared, add the phosphoric acid previously dissolved in water; when clear add the carbonates of soda and potash, and muriatic acid to dissolve any precipitate. Dilute with water till it reaches the measure of twenty-two fluid ounces; add the sugar, and towards the last the cochineal; dissolve by the aid of heat, strain, and when cool add the orange-flower water. As thus made, each teaspoonful contains about 2½ grains of phosphate of lime, 1 grain of phosphate of iron, with fractions of a grain of phosphates of soda and potash, besides free phosphoric and hydrochloric acids. The solution is perfect, the taste agreeably acid, and the flavour pleasant.

Infusum rosæ compositum. (W. R.)—Macerate the leaves with boiling water, using the proportion of ℥ss to Oiss; add sugar and diluted sulphuric acid. See formula given in our "Scientific Intelligence" for Honey of Roses.

GENERAL INFORMATION.

Tasteless Pills.—"Blue Pill" is informed that the Tolu process consists in covering the pills with balsam of tolu, dissolved in ether or chloroform.

Pulp for Paper Making. (G. K.)—The fibre of the hop-bine has been proposed as a paper material; but we believe that no satisfactory results have been arrived at from the experiments which the suggestion originated.

To render Muslin Fire-proof.—"Vampire" is informed that the solutions generally used for this purpose are:—1. Strong solution of sulphate of ammonia. 2. Weak solution of chloride of zinc. 3. Solution of tungstate of soda. The latter is by far the most effective.

Binding the Chemist and Druggist.—J. F. writes: "We find considerable inconvenience in having the C. and D. bound, from the front cover of each number (which wants cutting away for binding) having its fly-leaf incorporated with that part of the book which we wish to retain: for instance, in the December number, the front cover and page 355 form a sheet, and when the cover is cut away, 355 is of course left without any counterpart to stitch to; this may be easily remedied, without extra expense." We are much obliged to J. F. for pointing out what he conceives to be a defect, but we must remind him that we are forced to economize space, and are only following many publications in giving a leaf which the binder has to cut off. We do not think that any binder would find any difficulty in securing the single leaf which remains.

QUERY.

How to soften a Tiger Skin.—J. L. R. has asked a question which we really cannot answer, as the information he requires has but little connexion with the subjects to which our editorial thoughts are generally directed. He writes:—"What would be a good process for making a tanned tiger skin available for putting over the knees (I mean to soften it, and render it more pliable) without injuring the hair in any way?" Perhaps some of our readers can furnish our subscriber with the process he requires.

TRADE REPORT.

London, 13 Jan. 1862.

The favourable settlement of the American difficulty, as we anticipated in our last, has given a stimulus to business generally, and we look forward to a good spring trade. In the meantime, money has continued plentiful, and the imports of late being nearly all taken to the Bank, the directors of that establishment reduced the minimum rate on the 9th inst. ½ per cent., the quotation now being 2½, whilst in Lombard Street money is plentiful at 2 and 2¼ per cent. on first-class paper, and 4 and 5 per cent. on warrants. The Funds have advanced as well as all descriptions of shares, and this evening Consols left off at 93¼⅜ for money, and 93¼⅜ for the account.

In chemicals there has been an improved business in many articles, and in some few cases an advance has been obtained. More business has been transacted in tartaric acid at ⅛, and now there are few sellers under ⅛¼. Several parcels of citric acid have changed hands at ⅛, and now holders ask ⅛¼ and ⅛½; bichromate of potass continued dull at 8½; iodine remains dull, and the price nominal at 4¼ for seconds, and 4¾ for firsts. A few sales have been made in oxalic acid at 8½ and 9, and the best at 10. Prussiate of potass remains dull, 12¼ and 12½. Some sales of chlorate of potass had been made at 10¼, and now 10½ is asked with a firm market. Sal acetos is quiet at 10¼ and 10½. Soda ash remains quiet at 2 and 2⅛. In sulphate of copper small sales have been made at 34s. 6d. and 35s. A good business has been done in sulphate of ammonia at 14s. 6d. and 15s., and the best quality is now held for 16s. A good business has been done in flour of brimstone at 15s., and now the market is firm, and few sellers under 15s. 6d. Large sales have been made in cream of tartar, partly on American account, at £6 and £6 6s., and now £6 7s. 6d. and £6 10s. are demanded for the best. Soda crystals have likewise improved to £4 10s. and £4 15s.—ex ship with few sellers. In Canada pot and pearl ashes only small sales made at 37s. 6d. Turpentine was very quiet, and the price went nominally to 62s. and 65s., but since the news of the "Trent" affair being settled, holders have remained firm, and the price has advanced, 72s. being paid for American, at which price there are few sellers.

There have been no public sales of drugs since the commencement of the year, but generally business is better, and some large speculative sales have been made at better prices. Castor oil has risen ¼d. per lb.; some fair second pale sold at 5¾d. and 6d. A large parcel of 330 bales of Tinnevelly senna has arrived. Oil of aniseed goes off in small lots at 6s. 6d., and 50 or 60 cases for arrival have been sold at 5s. 9d. A considerable business has been done in camphor for arrival; upwards of 600 cases sold at £10 15s. up to £12, and lastly, at £11 15s. On the spot the price is firm at £12 to £12 10s. Large sales have been made in Turmeric at 2s. to 3s. per cwt. advance; good Calcutta selling at 17s. 6d. to 18s., and fine 19s. Large sales in Shellac have been made at a rise of 20s. to 30s. per cwt. Safflower is quieter, and some sales have been made at lower prices. Citronelle oil is ¼d. dearer; 10 cases arrived at 4¾d. to 5d. Jalap is quiet; ordinary and middling sold at 3s. 4d. to 4s. 1d. No sales in gums worth notice. In other goods there is no change to report.

PRICE CURRENT.

☞ *These quotations are the latest for* ACTUAL SALES *in Mincing Lane. It will be necessary for our retail subscribers to bear in mind that they cannot, as a rule, purchase at the prices quoted, inasmuch as these are the* CASH PRICES IN BULK. *They will, however, be able to form a tolerably correct idea of what they ought to pay.*

	1862.				1861.			
	s.	d.	s.	d.	s.	d.	s.	d.
ARGOL, Cape, pr ct.	97	6	112	6	98	0	103	0
French	60	0	..85	0	60	0	..85	0
Oporto, red	45	0	.. 0	0	50	0	..52	0
Sicily	65	0	..80	0	85	0	..92	6
Naples, white	65	0	..80	0	85	0	..90	0
Florence, white	90	0	100	0	95	0	105	0
red	85	0	..87	6	90	0	..97	6
Bologna, white	115	0	120	0	125	0	130	0
ARROWROOT, duty 4½ per cwt.								
Bermuda ...per lb.	0	10	.. 1	4	1	1	.. 1	5
St. Vincent	0	3	.. 0	5½	0	2¾	0	6
Jamaica.	0	2½	.. 0	4	0	2½	0	4¼
Other West India.	0	2	.. 0	3¼	0	2	.. 0	3¼
Brazil	0	1½	.. 0	2¼	0	1½	0	2¼
East India	0	1½	.. 0	2½	0	1¾	0	2½
Natal	0	2½	.. 0	7½	0	3	.. 0	7½
Sierra Leone	0	2½	.. 0	3	0	2½	0	3½
ASHES.....per cwt.								
Pot, Canada, 1st sort	37	6	.. 0	0	31	0	.. 0	0
Pearl, do. 1st sort.	37	6	.. 0	0	31	0	.. 0	0

	1862.				1861.			
BRIMSTONE,								
rough......per ton	£8	0	£8	5	£9	15	£10	0
roll	14	0	..14	10	14	0	.. 0	0
flour	15	0	..16	0	16	10	..17	0
CHEMICALS,	s.	d.	s.	d.	s.	d.	s.	d.
Acid—Acetic, pr lb	0	3½	.. 0	4	0	3½	.. 0	4½
Citric	1	8	.. 1	9¼	2	0	.. 2	1
Nitric	0	3½	.. 0	5	0	5	.. 0	5½
Oxalic	0	8¼	.. 0	10	0	8½	0	9
Sulphuric	0	0¾	.. 0	1	0	0¾	0	1
Tartaric crystl	1	8	.. 1	8¼	2	0	0	0
powdered.	1	8½	.. 1	9	2	1	2	2
Alum .....per ton.	£6	15	£7	0	£6	10	£6	15
powder	7	10	.. 8	0	7	10	.. 0	0
Ammonia. Crb. lb.	0*s.*	5¾*d.*	0	6*d.*	0*s.*	6½*d.*	0*s.*	6¾*d.*
	£	*s.*	£	*s.*	£	*s.*	£	*s*
Sulphate per ton	14	0	..15	0	13	10	..14	10
Antimony, ore	0	0	.. 0	0	16	0	..17	0
crude, per cwt	26*s.*	0*d.*	28*s.*	0*d*	32*s.*	0*d.*	42*s.*	0
regulus	49	0	..50	0	50	0	..51	0
French star	48	0	.. 0	6	51	0	..52	0
Arsenic, lump	17	6	..18	6	17	0	.. 0	0

PRICE CURRENT—*continued.*

	1862.				1861.			
CHEMICALS.	s.	d.	s.	d.	s.	d.	s.	d.
Arsenic powder ..	8	6	10	0	10	6	0	0
Bleaching Powder.	8	6	9	6	10	0	10	6
Borax, E. I. refind	0	0	0	0	0	0	0	0
British	60	0	62	6	65	0	0	0
Calomel....per lb.	2	8	0	0	2	10	0	0
Camphor, refined.	2	8	2	9	2	3	0	0
Copras. grn. pr. tn.	60	0	65	0	65	0	0	0
Crrsiv. Sublmte. lb	1	11	2	0	2	0	0	0
Green Emrld. pr. lb	0	9	0	11	0	9	1	0
Brunswk. cwt.	14	0	42	0	14	0	42	0
Iodine, dry, pr. oz.	0	4¼	0	4¾	0	5	0	5¼
Magnesia Crbn. ct.	40	0	45	0	42	6	45	0
Calcined, lb...	1	6	2	0	1	6	0	0
Minium red, pr. ct.	22	6	23	0	23	6	0	0
orange........	35	0	0	0	34	0	0	0
Ptsh. Bichrom. lb.	0	8½	0	0	0	10½	0	10¾
Chlorate	0	10	0	10½	0	10½	0	11
Hydriodate oz.	0	4¾	0	5¼	0	5½	0	6
Prussiate ..lb.	1	0½	1	0¾	1	2½	1	3
red..	2	0	2	1	2	3	0	0
Precipit. red pr. lb	2	9	2	10	2	10	2	11
white...	2	9	2	10	2	10	0	0
Prussian Blue.....	1	6	1	10	1	6	1	10
Rose Pink....pr ct.	29	0	30	0	29	0	30	0
Sal-Acetos...pr lb.	0	10½	0	0	0	10	0	10½
Ammoniac, ct.								
British...	36	0	38	0	32	0	33	6
Epsom........	8	0	0	0	8	3	0	0
Glauber	3	9	5	6	4	0	5	6
Soda, Ash, pr deg..	0	2	0	2⅛	0	2½	0	2¾
Bicarbonate..ct.	12	0	0	0	13	6	0	0
Crystals per ton.	£4	15	£0	0	£4	15	£5	0
Sgr. Lead, whte, ct.	37*s.*	0*d.*	39*s.*	0*d.*	36*s.*	0*d.*	37*s.*	0*d*
brown	27	0	28	0	28	0	29	0
Slphte. Quinine oz								
Britsh in bttl.	6	6	0	0	8	2	8	6
Foreign	5	9	0	0	7	6	7	9
Sulpht. Zinc..cwt.	14	6	15	0	14	6	15	0
Verdigris........lb.	0	10	1	2	1	3	1	6
Vermillon, English	3	0	3	4	3	0	3	4
China ..	2	6	2	8	2	10	3	0
Vtrl. blue or Romn.								
per cwt.	35	0	36	0	33	0	33	6
COCHINEAL pr. lb.								
Honduras, black..	2	6	4	6	3	0	5	2
silver...	2	0	3	2	3	0	3	6
Mexican, black....	2	5	3	0	3	2	3	8
silver ..	2	3	2	5	2	8	3	0
Lima	2	6	3	2	3	0	3	9
Teneriffe, black ..	2	6	3	4	3	4	4	3
silver ..	2	4	2	6	2	10	3	2
DRUGS,	£	*s*	£	*s.*	£	*s.*	£	*s.*
Aloes, Hepatic, ct.	6	10	10	0	3	10	9	10
Socotrine	8	0	24	0	5	10	24	10
Cape, good....	2	0	2	2	2	0	2	8
inferior.	1	0	1	16	1	8	2	0
Barbadoes....	3	0	21	0	2	0	23	10
Ambergris, gray.								
per oz..	35*s.*	0*d.*	38*s.*	0*d.*	34*s.*	0*d.*	40*s.*	0*d*
Angelica Root, ct..	20	0	35	0	35	0	42	0
Aniseed, China str.	60	0	75	0	70	0	80	0
German, &c.	22	0	42	0	32	0	42	6
Balsam Canada, lb	1	3	0	0	1	3	0	0
Capivi......	1	8	1	9	2	1	2	2
Peru........	4	7	4	8	4	9	0	0
Tolu	3	4	3	7	3	8	3	9
Bark Cascarilla ct.	25	0	49	0	24	0	49	0
Peru crown & grey								
per lb..........	1	2	2	6	1	7	2	9
Calisaya, flat...	3	6	3	9	4	10	5	0
quill....	3	4	3	6	4	6	4	8
Carthagena...	0	10	2	0	1	2	2	0
Pitayo........	1	6	2	2	1	6	2	3
Red	2	0	6	0	2	2	6	0
Bay Berries, pr ct..	22	0	40	0	22	0	40	0
Bucca Leaves, lb.	0	3	1	3	0	4¼	1	6
Camomile Flowers	40	0	90	0	55	0	130	0
Camphor, China..	240	0	245	0	160	0	170	0
Canella Alba......	19	0	40	0	25	0	46	0
Cantharides, pr lb.	2	0	2	2	2	7	0	0
Cardamums. Mlbar.								
good...........	4	10	4	11	4	7	4	10

	1862.				1861.			
DRUGS.	s	d.	s.	d.	s.	d.	s.	d.
Cardamums, inferior	3	10	4	9	4	2	4	6
Madras..	3	4	4	9	2	9	4	4
Ceylon .	4	0	4	6	3	6	3	9
Cassia Fistula pr ct.	13	0	23	0	28	0	38	0
Castor Oil, 1st pale, lb	0	6¼	0	6¾	0	6	0	6¼
second......	0	5¼	0	6	0	5¼	0	5¾
infr. & dark	0	4¾	0	5¼	0	4¾	0	5
Bombay. in csks.	0	4½	0	5	0	3¾	0	4
Castorum	1	2	28	0	6	0	25	0
China Root, pr ct.	9	0	10	0	9	0	10	0
Coculus Indicus ..	15	0	0	0	15	0	16	0
Cod-liver Oil, gal...	5	0	6	6	4	9	6	9
Clcynth. apple, lb..	0	8	1	2	0	11	1	6
Colombo Rt. pr ct..	15	0	47	6	15	0	47	0
Cream Tartar, pr ct.								
French	125	0	127	6	137	6	0	0
Venetian	127	6	130	0	140	0	0	0
grey	115	0	120	0	122	6	125	0
brown........	105	0	110	0	118	0	120	0
Croton Seed	90	0	105	0	80	0	90	0
Cubebs	115	0	120	0	160	0	170	0
Cummin Seed	45	0	55	0	36	0	40	0
Dragon's bld. rced.	£8	0	£12	0	£7	0	£14	0
lump...	3	10	10	0	5	0	13	0
Galangal Root....	0	16	20	0	1	6	1	8
Gentian Root	0	19	1	0	0	14	0	15
Guinea Grains, ...	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
per cwt.	50	0	52	0	48	6	50	0
Honey, Narbonne.	60	0	85	0	70	0	95	0
Cuba	25	0	48	0	46	0	54	0
Jamaica	30	0	70	0	45	0	70	0
Ipecacuanha, pr. lb.	6	6	6	9	4	6	4	7
Isinglass, Brazil...	1	0	3	10	1	10	4	0
East India......	0	9	3	2	1	4	3	10
West India	3	0	3	9	3	6	3	9
Russian........	12	0	13	9	0	0	0	0
Jalap	4	0	4		4	6	5	0
Jniper Berries cwt.								
German & Frnch	9	0	11	0	9	0	9	6
Italian	10	0	12	0	9	0	10	0
Lmon Juice, pr deg.	0	0¾	0	1	0	0½	0	0
Liquorice, per cwt.								
Spanish	83	0	90	0	83	0	90	0
Italian	85	0	95	0	85	0	95	0
Manna, flaky	2	6	0	0	3	9	4	6
small	1	6	1	9	2	0	2	3
Musk......per oz.	20	0	33	0	26	0	36	0
Nux Vomica......	8	0	9	0	11	0	11	6
Opium, Turkey ..	12	0	15	0	16	6	18	6
Egyptian..	6	0	12	6	6	0	13	0
Orris Root, pr cwt.	27	0	29	0	28	0	31	0
Pink Root, per lb...	1	10	2	2	1	2	1	4
Quassia (bit. wd) ton	£3	10	£4	0	£3	15	£4	0
Rhatania Root, lb.	0*s.*	9*d.*	1*s.*	0*d.*	0*s.*	9*d.*	1*s.*	0*d*
Rhbrb. China, rnd.	0	9	2	9	1	0	2	6
flat	1	3	3	0	1	2	2	9
Dutch, trmd.	3	0	3	6	3	3	3	6
Russian	11	6	0	0	13	6	14	6
Saffron, Spanish ..	45	0	0	0	54	0	56	0
Salep ....per cwt.	£8	10	£9	10	£14	0	£15	0
Sarsaparilla, Lima	0*s.*	11*d.*	1*s.*	4*d.*	0*s.*	10*d.*	1*s.*	2*d.*
Para	0	10	1	3	0	10	1	2
Honduras.	0	11	1	6	0	11	1	6
Jamaica ..	1	3	2	3	1	3	2	6
Sassafras..per cwt.	12	0	13	0	10	0	12	0
Scammony. per. lb.								
virgin	28	0	35	0	28	0	34	0
second ..	14	0	24	0	14	0	24	0
Seneka Root......	2	2	2	3	2	2	0	0
Senna, Calcutta ..	0	1½	0	2½	0	2	0	2½
Bombay	0	2	0	3	0	2½	0	4
Tinnevelly..	0	2	1	2	0	3	0	8
Alexandria	0	3¼	0	6½	0	4	0	7
Snake Root	1	8	1	9	1	2	1	3
Spermaceti, refined	1	0	1	1	1	6	0	0
Squills	0	1	0	0	0	1	0	3
Tamarinds, E. Ind.	10	0	13	0	7	6	12	0
W.I. per cwt.	15	0	32	0	16	0	35	0
Valerian Root, Eng	20	0	40	0	20	0	40	0
Terra Japonica—								
Gambier, cwt ..	17	3	18	0	17	0	17	3
Cutch, cwt	23	0	24	6	25	0	25	6

PRICE CURRENT—*continued.*

	1862.				1861.			
DRUGS.	s.	d.	s.	d.	s.	d.	s.	d.
Vanilla, Mexican lb	20	0	50	0	30	0	70	0
Wormseed, pr cwt.	2	0	0	0	1	0	0	0
GUM… per cwt.	£	*s.*	£	*s.*	£	*s.*	£	*s*
Ammoniac, drop..	3	10	5	5	2	15	5	0
lump ..	0	15	2	0	0	15	2	0
Animi, fine pale ..	15	0	16	0	15	10	16	0
bold amber.	10	0	14	0	13	0	14	10
medium.. .	8	10	10	0	8	10	11	10
small & dark	5	0	8	5	5	0	8	0
ordinry dark	2	10	5	0	2	10	5	0
Arab. E. I. f. palepkd	2	10	2	17	2	13	3	3
unsortd, good to f	1	14	2	15	1	18	2	10
red and mixed	1	0	1	10	1	8	1	16
siftings	0	0	0	0	0	18	1	3
Turkey, pkd. gd to f.	5	5	7	5	5	10	7	10
second & infr.	2	0	5	0	2	2	5	5
in sorts	1	10	2	0	1	10	2	3
Gedda	1	4	1	6	1	6	1	7
Barbary, white ..	1	10	1	13	1	10	1	12
brown ..	1	7	1	8	1	9	1	10
Cape	0	16	0	18	0	16	0	18
Assafœt. fr. to gd.	1	10	5	0	1	0	4	5
Benjamin, 1st. qual.	20	0	33	0	18	0	34	0
2nd qual	14	0	20	10	8	0	16	10
3rd ,,	2	10	9	10	3	0	7	10
Copal, Angola red.	5	0	6	5	5	0	5	15
pale.	4	15	5	5	4	5	5	0
Benguela	5	10	8	0	4	15	6	0
Sierra Lne lb	0*s.*	7*d.*	1*s.*	9*d*	0*s.*	9*d.*	1*s.*	9*d*
Manilla pr ct	14	0	40	0	15	0	43	0
Dammar ple. pr ct	38	0	54	0	46	0	52	0
	£	*s.*	£	*s.*	£	s.	£	*s.*
Galbanum	7	0	8	0	7	0	9	0
Gmbge. pkd. pipe	7	9	9	0	6	0	7	10
in sorts	4	0	6	0	4	10	5	10
Guaiacum ..pr. lb.	0*s.*	7*d.*	1*s.*	6*d*	0*s.*	9d	1*s.*	9d
Kino ....per cwt.	100	0	140	0	95	0	120	0
Kowrie	18	0	23	0	20	0	24	0
Mstic. pkd. pr lb..	6	6	7	6	8	0	9	0
Myrrh gd & fi pr ct	140	0	180		160	0	200	0
sorts	80	0	130	0	90	0	150	0
Olibanum, pl. drop	60	0	66	0	60	0	66	0
ambr & yel.	40	0	54	0	40	0	54	0
mixd. & dk.	10	0	26	0	12	0	26	0
Senegal	34	0	44	0	34	0	38	0
Sandrac	75	0	105	0	90	0	110	0
Tragacanth, leaf..	180	0	340	0	190	0	340	0
in sorts.	100	0	130	0	100	0	126	0
OILS.......per tun.	£	*s.*	£		£	*s.*	£	*s.*
Seal,	40	0	41	0	39	0	40	0
Sperm, body	96	0	0	0	100	0	102	0
Cod	40	0	41	0	37	0	33	0
Whale, Greenland.	0	0	0	0	0	0	0	0
Sth Sea pale	35	10	36	0	36	10	37	0
E. I. Fish	30	10	32	10	29	10	30	0
Olive, Galipoli, ton.	60	0	0	0	60	0	0	0
Florence, ½-chst.	1	1	1	2	0	16	0	0
Cocoant. Cochn. tn	49	0	50	0	55	0	0	0
Ceylon	48	0	49	0	53	0	0	0
Sydney	40	0	48	0	47	0	51	0
Ground Nut & Gin								
Bombay	42	10	43	0	40	0	0	0
Madras	44	0	45	0	42	0	43	0
Palm, fine	42	0	42	10	46	0	47	0
Linseed	34	0	34	3	28	10	28	15
Rapesd. Engl. pale	45	0	45	6	43	10	0	0
brown	44	0	0	0	41	0	41	10
Foreign do ..	46	6	47	0	43	0	44	0
brown	44	0	44	6	41	10	42	0
Lard	55	0	0	0	62	0	63	0
Tallow	37	0	40	0	32	10	0	0
Rock Crude	16	0	17	0	0	0	0	0
OILS, Essential—	*s.*	*d*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
Almond essen. lb.	19	0	0	0	30	0	31	0
expressed ..	0	0	0	0	1	0	0	0
Aniseed	6	3	6	5	7	4	0	0
Bay ....pr cwt.	0	0	0	0	122	6	0	0
Bergamott, pr lb.	6	6	14	0	6	6	14	0
Cajeputa, bond oz.	0	1½	0	2	0	1½	0	1¾
Caraway .....pr lb.	4	3	6	0	4	3	6	0
Cassia	9	0	9	3	10	6	10	9
Cinmon (in b) p oz	1	0	3	10	3	0	4	3
Cinnamon Leaf	0	2	0	4	0	1	0	2½

OILS.	s	d.	s	d.	s.	d.	s.	d.
Citronel	0	4½	0	5½	0	4¼	0	5½
Clove	0	4	0	0	0	4¼	0	0
Croton	0	3	0	4	0	3	0	4
Juniper ....per lb.	1	10	4	0	1	10	4	0
Lavender	2	6	5	0	2	6	5	0
Lemon	5	0	10	6	5	0	10	0
Lemongrass, pr oz	0	5	0	6	0	6	0	7½
Mace, ex	0	1½	0	2	0	2	0	2½
Neroli	6	0	9	0	6	0	9	0
Nutmeg	0	1¼	0	2½	0	1¾	0	2¼
Orange ....per lb.	6	6	7	0	7	0	8	0
Otto Roses, per oz.	16	0	25	0	16	0	26	0
Peppermint, pr lb.								
American	7	6	14	0	7	6	15	3
English	33	0	38	0	35	0	43	0
Rhodium ..per oz.	3	9	6	0	3	9	6	0
Rosemary..per lb.	1	10	3	0	1	10	3	0
Sassafras	3	6	4	0	3	0	3	6
Spearmint	5	0	12	6	5	0	12	6
Spike	1	3	1	6	1	3	1	6
Thyme	1	9	2	6	1	9	2	9
PITCH, Brtsh, pr cwt.	7	0	0	0	6	0	6	3
Swedish	10	6	0	0	10	3	0	0
SALTPETRE, pr cwt.								
Bngl, 6 p c. or under	39	0	40	0	40	0	41	0
over 6 per cent.	37	6	30	0	36	0	39	6
Madras	36	0	38	0	35	6	39	0
Bombay	36	0	38	0	35	0	38	0
British-refined	43	0	44	0	41	0	42	6
Nitrate of Soda ..	13	6	14	6	13	0	14	0
SEED, Canary, pr qr.	40	0	50	0	44	0	60	0
Caraway, Eng. p. c.	23	0	25	0	28	0	30	0
German, &c	0	0	0	0	26	0	34	0
Coriander	15	0	17	0	0	0	0	0
East India	0	0	0	0	11	0	12	0
Hemp	44	0	50	0	41	0	46	0
Linseed, Black Sea	60	0	61	0	57	0	0	0
Calcutta	61	0	64	0	58	0	0	0
Bombay	66	0	0	0	61	0	0	0
Egyytian	58	0	0	0	54	0	56	0
Mustard, brn, p. bhl	8	0	12	0	9	0	12	0
white..	6	0	9	0	8	0	12	0
Poppy, E. I. per qr.	58	0	0	0	59	0	60	0
Rape, English	0	0	0	0	0	0	0	0
Danube	69	0	70	0	63	0	0	0
Calcutta, fine ..	63	0	0	0	60	0	0	0
Bombay,	68	0	70	0	67	0	0	0
Teel, Sesme or Gngy	64	0	70	0	56	0	64	0
Cotton.... per ton	150	0	160	0	155	0	165	0
Gnd. Nut Krnels, tn	340	0	345	0	330	0	340	0
SOAP, Lnd. yel. pr ct.	21	0	36	0	21	0	38	0
mottled	34	0	36	0	36	0	38	6
curd	50	0	0	0	52	0	0	0
Castile	38	0	40	0	37	0	40	0
Marseilles	40	0	41	0	40	0	41	0
SOY, China, per gal.	2	2	2	4	3	0	3	3
Japan	0	8	0	10	1	6	1	9
SPONGE, Turk. f. pkd	20	0	24	0	20	0	26	0
fair to good	8	0	18	0	9	0	18	0
ordinary..	3	0	6	0	3	0	8	0
Bahama ..	0	4	1	3	0	3	1	0
TURPENTINE,								
Rough..per cwt.	22	0	0	0	10	0	0	0
Spirits, English ..	70	0	0	0	30	6	0	0
American, incsks	72	0	0	0	32	0	0	0
WAX, Bees, English	£8	5	£8	15	£8	5	£8	10
German	8	0	8	10	8	0	8	5
American	8	0	8	10	9	0	10	0
white fine	0	0	0	0	10	0	10	10
Jamaica	8	10	9	5	9	10	10	0
Gambia	8	0	8	10	9	0	0	0
Mogadore	6	0	8	0	6	5	7	10
East India	7	0	8	10	7	10	8	10
ditto, bleached..	8	0	9	15	8	10	10	10
vegetable, Japan..	2	18	3	15	3	0	3	7
WOOD, DYE, per ton,								
Fustic, Cuba	8	0	8	10	8	10	9	0
Jamaica	5	15	6	5	5	10	5	15
Savanilla	5	0	5	10	5	0	5	5
Zante	0	0	0	0	5	10	6	10
Logwood, Cmpchy	9	0	9	10	6	10	6	15
Honduras	6	5	6	10	0	0	0	0
St. Domingo	6	10	6	15	5	0	5	10
Jamaica	6	10	6	15	4	15	0	0

PATENTS

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1019. C. Stevens. *A new artificial manure.* (A communication.) Dated April 24, 1861.

This improved manure is composed of the undermentioned ingredients (subjected to a certain process of treatment) in the following proportions:—woollen rags, 10 kilogrammes or about 22 lbs.; crystals of subcarbonate of soda, 9 kilogrammes, or about 19 lbs. 13 oz.; lime, slacked with about three-quarters of a pint of water to every 2 lbs., 3 kilogrammes, or about 6 lbs. 10 oz.; sulphate of iron in coarse powder 100 grammes, or about 3¼ oz.; sulphate of magnesia, 200 grammes, or 6½ oz.; sulphate of ammonia, 1 kilogramme, or about 2 lbs., 3 oz.; finely powdered phosphate of lime, rendered soluble, 3½ kilogrammes, or about 7 lbs. 11 oz.; water, 21 litres, or about 4½ gallons. *Patent completed.*

1115. J. A. Manning. *A mode or method of collecting ammonia from the waste gases arising from the combustion of coal.* Dated May 3, 1861.

This consists in vaporising the effluent or escaping gases, as they leave the furnace and ascend the main chimney or shaft, by the introduction therein, or the admixture therewith, of a jet or jets of steam. This steam after it has become charged with the ammoniacal and other gases, with which it will combine, or by which it becomes impregnated, is condensed by passing it through or into suitable condensers or refrigerators, so that ammoniacal liquid may be obtained, from which sulphate of ammonia may be made by the ordinary or other suitable process for preparing that salt from ammoniacal liquors. *Patent completed.*

1266. W. Clark. *Improvements in the preparation or manufacture of artificial alizarine.* (A communication.) Dated May 17, 1861.

The inventor prepares artificial alizarine by the following process:—He introduces into a capacious reservoir a mixture of binitro-napthaline, dissolved in concentrated sulphuric acid and granulated pewter, and heats it until some white vapour appears therein. A quick reaction is manifested, the mixture becomes black, and increases in bulk. When the reaction is completed he treats the doughy mass with a quantity of boiling water, and filters it. By cooling the filtered liquor some alizarine settles, and there remains in the filter a large amount of alizarine which can be dissolved in caustic carbonated alkalies, and again precipitated by an acid; all the sediment or deposits thus formed are placed together, and then sublimated or crystallized in alcohol. In this manner he obtains alizarine quite pure. *Patent abandoned.*

1200. A. C. A. G. de Melcy. *An improved treatment of natural phosphate of lime for several purposes.* Dated May 11, 1861.

The object here is to heat natural phosphate of lime in order to produce phosphate of lime and carbonate of soda. In treating phosphate of lime by sulphuric acid, the greater part of the phosphoric acid is set free. In the different modes of treating phosphatic matters hitherto adopted this free acid has not been utilized. The inventor employs it for the decomposition of sea salt, and the transformation of the same into phosphate of soda. *Patent abandoned.*

1269. A. C. Ponton. *Combining together siliceous powder into solid masses of any form, by means of sulphur, and which combination he calls siliceous stoneware.* Dated May 18, 1861.

The siliceous stoneware manufactured according to this invention is composed of ground flints, ground quartz, or Lynn sand, or tripoli or silicious powder from any other source, and as much melted sulphur as is necessary to unite the silicious particles together and form them into a mass adapted to the various purposes to which the ware may be applied. Any colouring matter may be added to the mixture of silica and sulphur to alter or vary the tint of the ware. *Patent abandoned.*

1448. A. A. Croll. *Improvements in the manufacture of sulphate of alumina.* Dated June 7, 1861.

Here, supposing the object to be the production of sulphate of alumina in the form of cake to be used in the manufacture of paper or otherwise, the shale or other aluminous matter to be operated upon is roasted, as is well understood, after being finely powdered in a suitable vessel, by preference in a dry state; it is also by preference subjected to a dry heat, till it has attained a temperature of about 300 Fahrenheit; and the patentee then causes to flow upon it, whilst thus heated, sulphuric acid (oil of vitriol) of about 1.7 strength, and which has also been previously heated to a temperature of about 300 Fahrenheit, and in the proportions of about 20 parts by weight of sulphuric acid to about 20 parts by weight of aluminous matter. *Patent completed.*